

# *Live Long and Prosper*

Aging in East Asia and Pacific



WORLD BANK EAST ASIA AND PACIFIC  
REGIONAL REPORT



**Live Long and Prosper**

## WORLD BANK EAST ASIA AND PACIFIC REGIONAL REPORTS

Known for their economic success and dynamism, countries in the East Asia and Pacific region must tackle an increasingly complex set of challenges to continue on a path of sustainable development. Learning from others within the region and beyond can help identify what works, what doesn't, and why, in the search for practical solutions to these challenges. This regional flagship series presents analyses of issues relevant to the region, drawing on the global knowledge and experience of the World Bank and its partners. The series aims to inform public discussion, policy formulation, and development practitioners' actions to turn challenges into opportunities.

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World Bank East Asia and Pacific Regional Report

# Live Long and Prosper

Aging in East Asia and Pacific

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## Foreword

As a region, East Asia and Pacific is aging rapidly. The region is home to over a third of the global population ages 65 and older—mostly in China—and to more old people than any other region. More significantly, the region is aging more rapidly than any region in history—a trend driven both by sharp declines in fertility and by steady increases in life expectancy—and in many countries, aging is occurring at relatively low-income levels. Nevertheless, the pattern and pace of aging across East Asia and Pacific is diverse, ranging from aged richer countries such as Japan and the Republic of Korea; to rapidly aging middle-income countries such as China, Thailand, and Vietnam; to younger and poorer countries such as the Lao People’s Democratic Republic, which will only start to age rapidly two or three decades from now.

Across these countries, aging raises policy challenges and economic and social risks. Policy makers express concerns about the impact that shrinking and aging labor forces will have on economic growth. More immediately, there are fiscal challenges to providing sustainable health, pension, and long-term care systems in the face of rapid aging. Aging is occurring in a wider context of shifting relationships between the state

and its citizens, which will influence policy responses.

This report finds that East Asia and Pacific is well positioned to manage the risks from aging. First, people in the region already have long working lives. Second, entitlements to pensions, health care, and long-term care for most of the population are still modest, and there is scope to act now to put in place systems that can be sustainable in the future. Third, household savings in the region are already high, and people tend to save until later in life, suggesting that they may be better prepared for old age. Finally, people in East Asia and Pacific have in recent decades seen a steady increase in the number of years lived in good health.

The key message of the report is that it will be possible to manage rapid aging in East Asia and Pacific while sustaining economic dynamism. This effort will require politically difficult policy choices, including dealing with associated fiscal risks. Several complementary policy reforms are required to manage these risks. In the labor market, a range of measures are needed (a) to encourage increased female labor force participation while stemming the sharp decline in fertility, (b) to ensure that older workers in the formal sector do not retire too early as

a result of social security and wage-setting systems, (c) to accommodate older workers in the workplace through greater use of flexible work arrangements, and (d) to open up aging labor markets to greater inflows of young immigrants.

Pension systems also need reform. Formal sector pension schemes will need to be more fiscally sustainable, which will require reforms such as gradual increases in the retirement age. Such changes are needed to create fiscal space for expanding pension coverage to the large and currently uncovered informal sector—an effort that will require greater use of noncontributory approaches such as social pensions.

In the health sector, the impacts of aging will likely be significant, particularly given the increased incidence of noncommunicable diseases. This trend underscores the urgency to shift from a hospital-centric model to one in which primary care plays a bigger role and in which the treatment of older patients with chronic conditions is managed affordably at the right levels of the system. As in the case of pensions, the financing model for health care will need to rely more on budget financing to achieve universal health coverage as the needs of an aging population grow. Aging is also creating a rapidly growing demand and market for long-term care. Innovation is urgently needed in this area as traditional family networks become increasingly stretched.

Given the diverse stages of demographic transition across the region, lessons can be drawn from the experience of richer East Asian and Pacific economies. Their experiences, as well as those of high-income countries in other regions, highlight that this policy agenda will be challenging for developing East Asian and Pacific countries

that are already experiencing or are about to experience rapid aging. In the meantime, countries with younger populations will need to prepare now for rapid aging in the future by setting up sustainable health and pension systems while maximizing the demographic dividend from their still-expanding labor forces.

As we have seen in the richer economies in East Asia and Pacific and elsewhere in the world, the political economy of reform in aging societies can be difficult. Societal expectations change rapidly, especially as incomes grow, and people expect more support and better services from the state in old age. Managing aging is not only about “old people” or about “the old” versus “the young.” Rather, it requires a life-cycle perspective on policy design that recognizes, for example, that the health of children affects their health as adults, that saving for old age needs to start early, and that the burden of taxation to provide services and benefits needs to be spread fairly across generations.

This report argues that impending demographic changes are important and will become even more so in the countries of East Asia and Pacific in coming decades. But demography is not destiny. Through the right mix of policies, governments can help societies adapt to rapid aging and improve the well-being of citizens.

I hope this report contributes to a considered debate of the policy choices needed to achieve healthy and productive aging across the region.

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# Abbreviations

AAI	Active Aging Index
ADL	activity of daily living
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
BMI	body mass index
CES-D 10	Center for Epidemiologic Studies Depression Scale
CHARLS	China Health and Retirement Longitudinal Study
CPF	Central Provident Fund (Singapore)
CVD	cardiovascular disease
DALY	disability-adjusted life year
DB	defined benefit
DC	defined contribution
ELSA	English Longitudinal Study of Ageing
EPF	Employees Provident Fund (Malaysia)
EU13	Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, the Slovak Republic, and Slovenia
FFS	fee-for-service (payment method)
GDP	gross domestic product
GNI	gross national income
GPF	Government Pension Fund (Thailand)
GSIS	Government Service Insurance System (the Philippines)
HALE	health-adjusted life expectancy
HR	health and retirement
HTA	health technology assessment
IADL	instrumental activity of daily living
IFLS	Indonesia Family Life Survey
IMF	International Monetary Fund
LASI	Longitudinal Aging Study in India
LCH	life-cycle savings hypothesis
LDL	low-density lipoprotein
LFPR	labor force participation rate

LTC	long-term care
LTCF	long-term care facility
LTCH	long-term care hospital
MPFA	Mandatory Provident Fund Authority (Hong Kong SAR, China)
NCD	noncommunicable disease
NDC	notional defined contribution
NHS	National Health Service (United Kingdom)
NHSO	National Health Security Office (Thailand)
NPS	National Pension Service (Republic of Korea)
NSSF	National Social Security Fund (China)
NTA	National Transfer Accounts
OECD	Organisation for Economic Co-operation and Development
OOP	out-of-pocket (payment)
PHARMAC	Pharmaceutical Management Agency (New Zealand)
PHC	primary health care
PISA	Programme for International Student Assessment
POEA	Philippines Overseas Employment Administration
PROST	Pension Reform Options Simulation Toolkit
SAGE	Study on Global Ageing and Adult Health (World Health Organization)
SAR	Special Administrative Region
SHARE	Survey of Health, Ageing, and Retirement in Europe
SJSN	<i>Sistem Jaminan Sosial Nasional</i> , or National Social Security System (Indonesia)
SPICE	Singapore Programme for Integrated Care for the Elderly
SSO	Social Security Office (Thailand)
SSS	Social Security System (the Philippines)
STEP	Skills Toward Employability and Productivity
TDR	total dependency ratio
TFR	total fertility rate
TVET	technical and vocational education and training
UN	United Nations
WHS	World Health Survey

# Overview

## Introduction

The population in East Asia and Pacific is aging rapidly, raising concerns about the implications for the region's economic future. Although the region is aging rapidly, proactive public policy can play an important role in helping it adapt to changing demographics and mitigating the downside risks of aging.

This report aims to crystallize what is known about the rapidly changing and diverse demographics of East Asian and Pacific countries. It documents policy frameworks on aging and explores the implications of alternative reform options. Its purpose is not only to provide a comprehensive review of aging in the region and associated policy responses, but also to encourage policy debate by facilitating comparison of policy regimes across the region.

Aging raises many challenges and risks, which East Asian and Pacific countries are well positioned to manage—provided they make policy choices that promote appropriate behavioral change by households and employers. Initial conditions are poised to promote healthy and productive aging. The region's countries already have populations with long

working lives, high savings rates at all ages, and social security systems that thus far have largely avoided unsustainable legacy commitments. But, the region is at a crossroads. Managing rapid societal aging while sustaining economic dynamism calls for politically challenging policy choices that require strong leadership and social consensus.

The effect of and policy responses to aging in East Asia and Pacific have seven overarching themes:

1. *The very rapid demographic and epidemiological transition heightens the urgency of policy responses in many developing countries in the region.* The speed of aging is accompanied by other rapid socioeconomic transitions that have significant implications for the effects of aging on household and societal welfare and the capacity of countries to manage the demographic transition. They include rapid urbanization and migration, with accompanying mobility and dispersion of extended families; rapidly changing social values, which are shifting expectations of support between generations; and rapidly rising incomes, which create not only new possibilities

but also new expectations from citizens. The speed of all of these changes matters.

2. *Several middle-income countries in the region are growing old before growing rich.* Unlike most Organisation for Economic Co-operation and Development (OECD) member countries, which aged at a gradual pace as they grew wealthy, several East Asian and Pacific countries are experiencing—or will experience in coming decades—accelerated aging at relatively low levels of per capita income. This pattern has major implications for the welfare of older people and the possibilities for public policy and institutions to help manage the aging process.
3. *Aging is occurring in a wider context of shifting relationships between state and citizens in many East Asian and Pacific countries.* In much of the region, the state has traditionally provided more limited direct support than in other parts of the world. Traditional values have placed greater emphasis on the support role of families and other networks. Although such values have strong residual influence, citizens are increasingly expecting more from the state. In rapidly aging countries in the region, citizens view aging as a major challenge: about 80 percent of the people in the Republic of Korea and two-thirds of the people in China regard aging as a “major problem” for their country (Pew Global Attitudes Survey 2013).
4. *Demographics are largely a given (at least for the foreseeable future), but policy and behavioral responses are within the control of governments and citizens.* However, the behavioral changes required of people, employers, and societies do not happen overnight. In a number of cases, they go to the heart of sociocultural beliefs about gender and the obligations of generations toward one another. Policy changes to address aging and realize the potential of older people are challenging and often unpopular.
5. *Although commonalities exist, initial conditions vary enormously across the region, and emerging policy responses already show considerable diversity.* Some countries are already very old; others have decades of potential demographic dividend to realize. However, whether aging is a current, emerging, or more distant reality, nearly all societies in the region need to frame public policy with the realization that rapid aging will come at some point.
6. *Responding to aging is not just about old people.* Effective responses require policy and behavioral change across the life cycle of individuals. Actions to effect these changes must consider fertility and child care policies; education and skills systems; tax, social security, and transfer systems; labor market policies across the life cycle; and policies directed at older people themselves. At the most basic level, evidence increasingly points toward the importance of early childhood health and nutrition as predictors of adult and old age health.
7. *Aging is multidimensional and requires new modes of policy coordination.* The fact that aging cuts across all dimensions of people’s lives and public policy, whereas public institutions tend to operate in silos, creates new challenges to crafting responses that are more than the sum of their parts. The expansion of national aging policies and cross-cutting institutions in East Asia and Pacific is an acknowledgment of the challenge.

The overview is organized as follows. The first section reviews the demographic and epidemiological transitions in East Asia and Pacific. It is followed by a discussion of the living standards and other indicators of welfare of older people in the region, such as sources of support and living arrangements. The third section discusses the effects of aging on growth, the labor force, savings, and government budgets, and the ways in which countries can manage them. The fourth



section looks at challenges facing pension, health, and long-term care systems. This section is followed by a short discussion of cross-cutting challenges. The final section provides some concluding thoughts.

## Understanding the rapid demographic and epidemiological transition

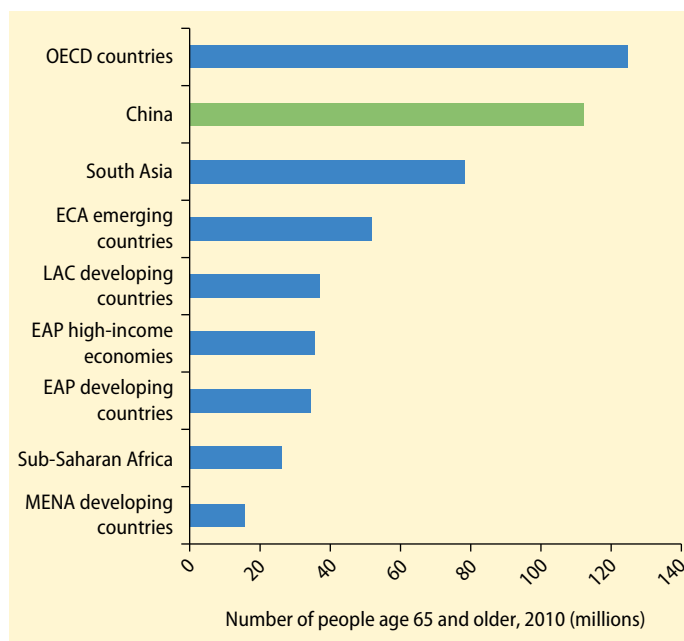
Although much of East Asia and Pacific has still to experience its most rapid period of aging, it already has the largest regional population of people ages 65 and older, primarily in China. In 2010, East Asian and Pacific countries had about 185 million people ages 65 and older, about 36 percent of the global population of this age group (figure O.1). China alone had almost 114 million old people, more than any developing region.

More significantly, East Asia and Pacific is aging more rapidly than any region in history. The phenomenon is driven primarily by a rapid decline in fertility but also by increased longevity. Nearly all middle-income countries in the region are in the midst of or will soon experience a pace of aging that is unprecedented, transitioning from young to old societies in 20 to 25 years—a transition that took 50 to more than 100 years in OECD countries (figure O.2). Although the starting points vary, nearly all East Asian and Pacific countries move from aging to aged societies relatively quickly when the aging threshold is reached (exceptions are the Philippines and Papua New Guinea).

The main driver of aging in East Asia and Pacific has been the sharp decline in fertility, which fell from 5.91 children per woman in 1960 to 2.46 in 2005. This decline was significantly faster than the global decline (from 5.51 children per woman to 3.03). Fertility rates in several East Asian economies are now among the lowest in the world, with richer economies in the region averaging only 1.28 children per woman in 2010. In major middle-income countries, such as China, Thailand, and Vietnam, the fertility rate is well below replacement fertility and continues to fall (UN 2013).

**FIGURE O.1 East Asia and Pacific has more older people than any other region**

*Number of people ages 65 and above by region and East Asian and Pacific subregion*



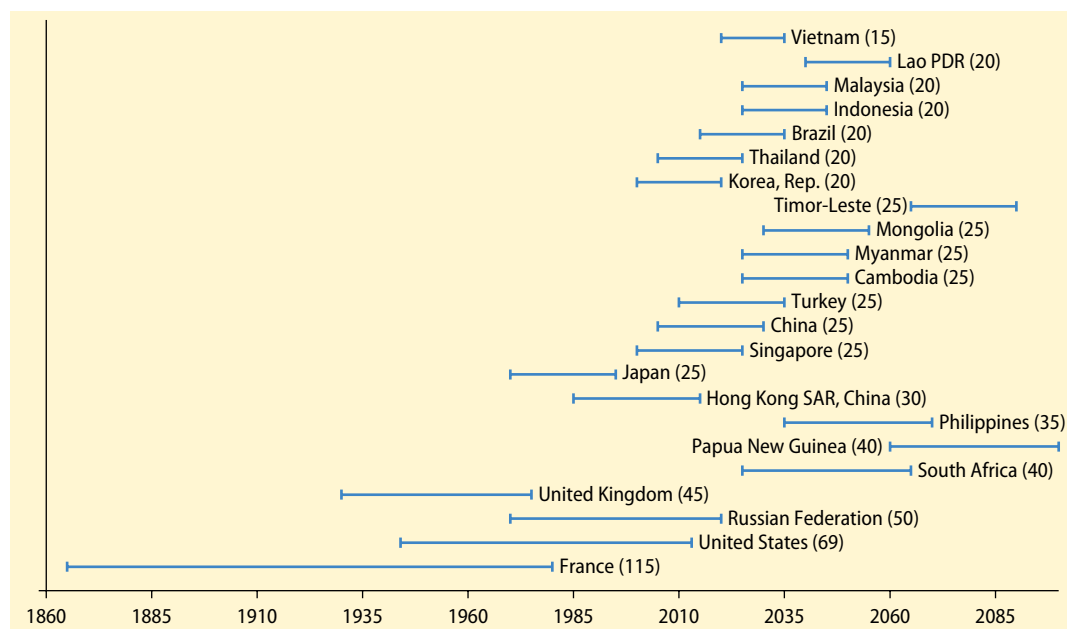
Source: World Bank estimates based on data from UN 2013.

Note: EAP = East Asia and Pacific; ECA = Eastern Europe and Central Asia; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; OECD = Organisation for Economic Co-operation and Development. EAP developing countries exclude China.

Declining fertility has combined with steady increases in both life expectancy and health life expectancy, in contrast to regions such as Eastern Europe and Central Asia.

The demographic diversity of East Asian and Pacific economies suggests three groupings. The first group (red)—comprising Hong Kong SAR, China; Japan; the Republic of Korea; and Singapore—includes the wealthiest economies. People ages 65 and older represented 14 percent of the total population of this group in 2010. The second group (orange) includes China, Indonesia, Malaysia, Mongolia, Thailand, and Vietnam. These countries are aging very quickly. The third group (green) comprises Cambodia, the Lao People's Democratic Republic, Myanmar, Papua New Guinea, the Philippines, Timor-Leste, and the Pacific Island countries

**FIGURE O.2 East Asian and Pacific economies are aging more rapidly than economies elsewhere**  
*Years to move from 7 to 14 percent population share 65 years and older and the start and end years of transition*



Sources: World Bank estimates based on data from UN 2013 and Kinsella and He 2009.

Note: Figure shows starting and ending year for transition from 7 percent (aging) to 14 percent (aged) of population ages 65 and older. Aging and aged thresholds are based on United Nations definitions. East Asia and Pacific economies rounded to five-year increments.

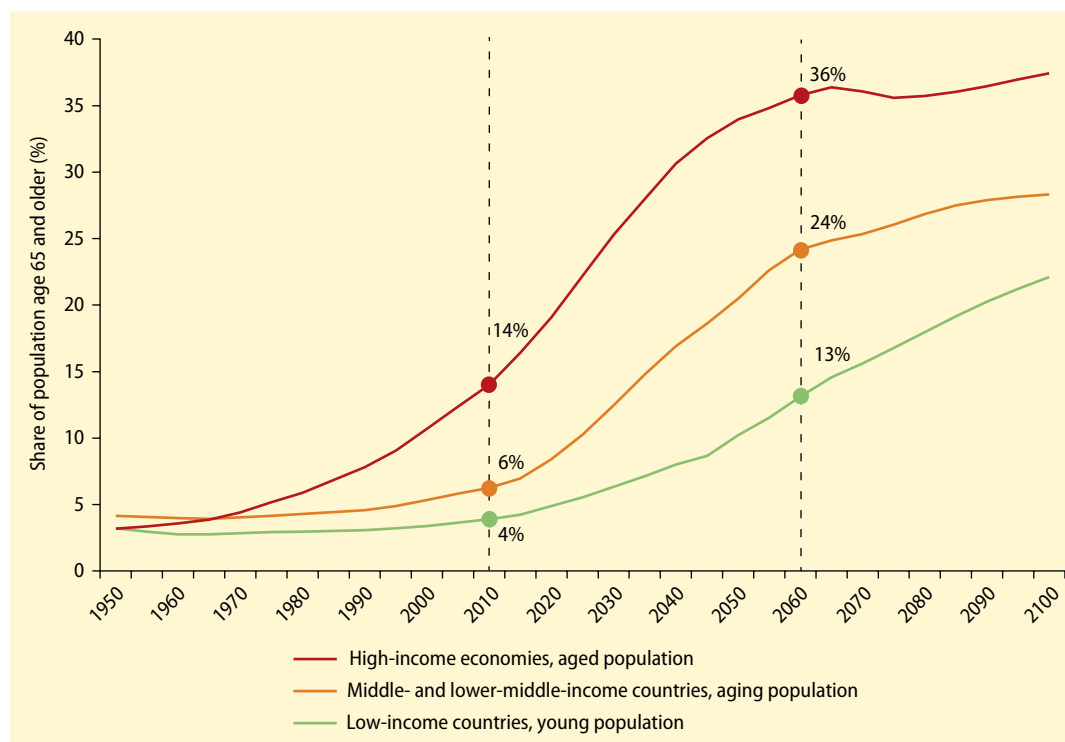
(not shown in figure O.3). These countries are still young—just 4 percent of the population was age 65 or older in 2010—but they will begin to age quickly in coming decades.

Demographics drive divergent trends in working-age populations. Several East Asian and Pacific countries are projected to experience sharp declines in their labor forces (figure O.4). Between 2010 and 2040, the share of the working-age population will fall by more than 15 percent in Korea and by at least 10 percent in China, Japan, and Thailand. In contrast, in green and some orange countries, the working-age share of the population is not expected to shrink until after 2040. In absolute terms, the Philippines and Indonesia will account for the largest share of the regional increase.

Although the directions of the demographic transition in East Asia and Pacific are clear, considerable uncertainty remains about the speed of the transition and the way to think about key measures such as dependency

ratios. The record of demographic projections in the region is mixed, suggesting that projections should be treated with caution. Fertility decline, for example, has tended to consistently outpace projections in the region; assumptions about future reversals in fertility for richer East Asian and Pacific economies risk extrapolating from unstable short-run dynamics.

The basic challenges are further complicated by the speed of urbanization, internal and foreign migration, and other factors that will inevitably affect demographic trajectories. Moreover, even in cases where aggregate projections are reliable, rethinking traditional measures such as elderly dependency ratios will be needed. The static definition of the working-age population as people ages 15 to 64, for example, is increasingly being questioned. Alternative dependency measures that have been proposed (such as years of remaining life or ratios based on age profiles of actual labor force participation)

**FIGURE 0.3 Three distinct aging patterns are apparent in East Asia and Pacific***Percentage of population age 65 or older in East Asian and Pacific economies*

Source: World Bank estimates based on data from UN 2013.

Note: The high-income "red" economies, which have an aged population, include Hong Kong SAR, China; Japan; the Republic of Korea; and Singapore. The middle- and lower-middle-income "orange" countries with an aging population include China, Indonesia, Malaysia, Mongolia, Thailand, and Vietnam. The low-income "green" countries with a young population include Cambodia, Lao PDR, Myanmar, Papua New Guinea, the Philippines, and Timor-Leste.

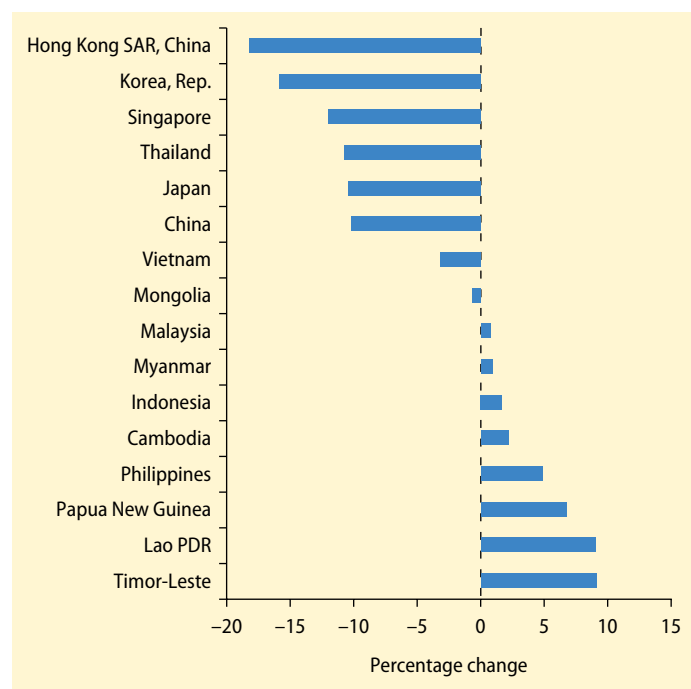
may be more relevant for policy purposes as people live longer and young people spend more time acquiring education.

Together with the demographic transition, East Asia and Pacific is experiencing a rapid epidemiological transition toward noncommunicable diseases (NCDs), in part driven by population aging. Healthy life expectancy in the region increased between 1990 and 2010, albeit by slightly less than total life expectancy. At the same time, the burden of disease related to NCDs has grown rapidly, with initial onset increasingly occurring in middle age. NCDs caused 76 percent of deaths in the region in 2008, and the share is projected to rise to 85 percent by 2030 (IHME 2013). Cardiovascular disease, cancer, and diabetes already accounted for the

bulk of disability-adjusted life years among people ages 60 and over in 2010, with comorbidities complicating approaches to treatments and care. Underlying these trends is growing exposure to risk factors, to which the poor are most vulnerable. Between 1990 and 2010, premature death and disability associated with NCD-related risk factors (such as high salt intake, blood pressure, total cholesterol, and blood sugar) increased everywhere in the world. The increase was particularly pronounced in East Asia and Pacific. As a result of earlier onset of lifestyle-related conditions such as hypertension and obesity, in many countries in the region, the current cohort of middle-aged people is more vulnerable to poor health in old age than were earlier cohorts (IHME 2013).

**FIGURE 0.4** In the richer economies of East Asia and Pacific, the working-age population is projected to shrink between 2010 and 2040

*Percentage change in population ages 15–64 between 2010 and 2040, selected economies*



Source: World Bank estimates based on data from UN 2013.

### Situation and sources of support of older people

The situation of older people in East Asia and Pacific is diverse across and within countries. Across developing countries, older people shared in the significant decline in poverty, but poverty in a number of the region's countries tends to rise with age after age 45, before flattening or even declining at the oldest ages. As with the general population, older people with higher levels of education (and people with children with higher levels of education), access to a formal sector pension, and better health status tend to be better off than their peers. In contrast to the situation of the younger adult population, however, employment status has a more complex relationship with poverty among the elderly, in part because many poorer, often rural, older people have to “work till they drop.”

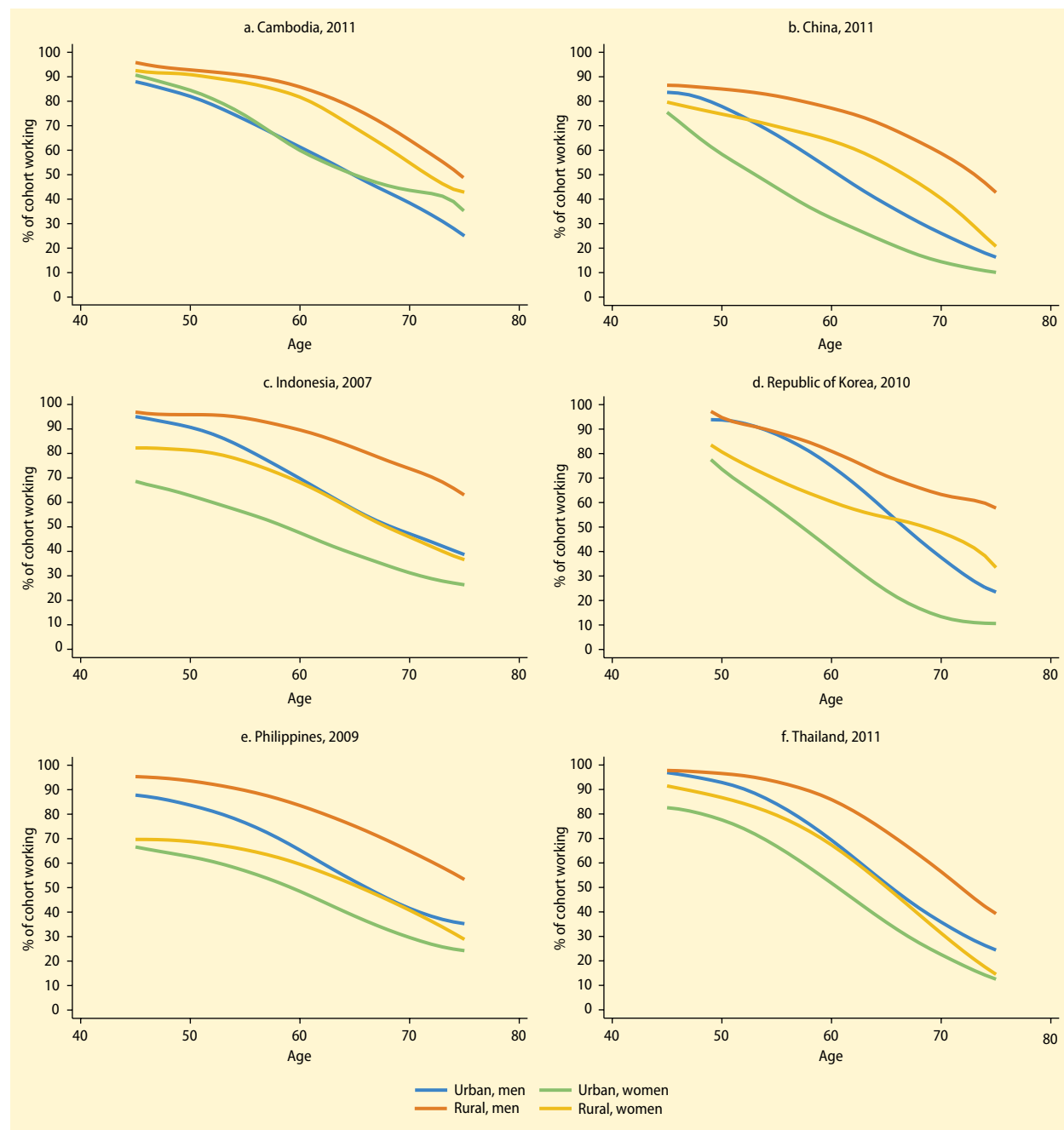
Co-residence of older people with adult children is high in East Asia and Pacific, although it varies across countries and has declined significantly over time in some countries. It generally increases between middle age and the mid-60s. For people ages 60 and older, co-residence rates range from 25 to 30 percent to more than 80 percent, with significant variation by gender and by urban and rural location. Rates are particularly high in low-income countries, and, consistent with global patterns, lower at higher-income levels within countries. Co-residence with children has been declining rapidly in China, Korea, and Thailand. In China, the co-residence rate for people ages 65 to 70 fell from almost 66 percent in the early 1980s to roughly 43 percent by 2011. In Korea, co-residence of people ages 65 and older fell from more than 80 percent in 1980 to well below 30 percent by 2010 (Giles and Huang 2015).

Older people in East Asia and Pacific often work until very old age. However, significant differences exist between urban and rural areas and between men and women (figure 0.5). On average, people work until late in life, but many people in urban areas stop working relatively early, and some groups (such as urban Chinese female workers) retire very early (only about one-third are still working at age 60). Withdrawal of urban people from work is clearly correlated with access to a formal sector pension, though caregiving responsibilities for grandchildren and other elderly also play a role in the early withdrawal of urban women from formal work. Nearly everywhere, urban female workers are the least likely to work into old age, and gender gaps in participation are substantial. Among people who continue working into old age, self-employment is the dominant form of work, and self-employment rates of 90 percent and higher are common in rural areas of the region (Giles, Hu, and Huang 2015).

Older people in East and Southeast Asia tend to continue working long hours, particularly in rural areas. In the economies analyzed for this report, men who continue to work past age 65 work, on average, 40 hours or more a week, and women work 30–45 hours a week.

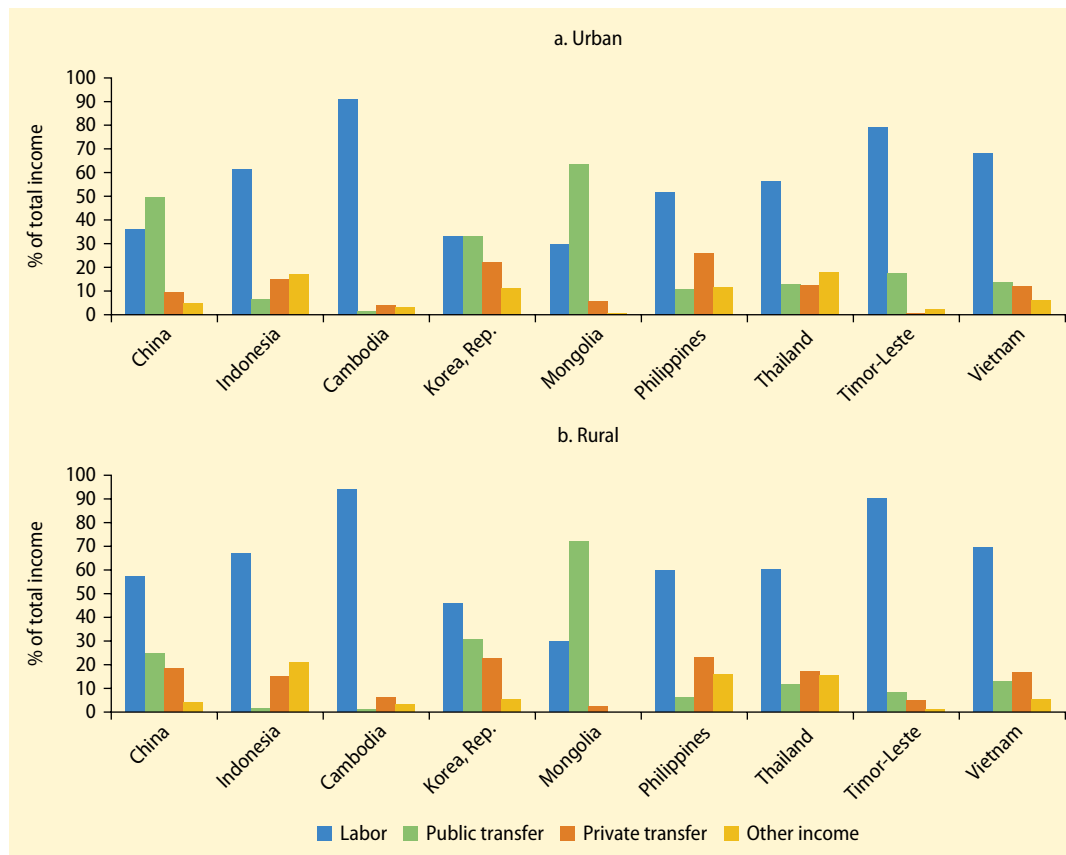
**FIGURE 0.5 Labor force participation rates in East Asia and Pacific vary, but across the region, rural people work significantly longer than urban people**

*Percentage of population participating in the labor force, by age, gender, and urban or rural location, selected countries*



Sources: Giles, Hu, and Huang 2015, based on data from CHARLS 2011; IFLS 2007; KLoSA 2010; World Bank East Asia and Pacific Standardized Household Surveys, various years; and ThaiSES 2011.

**FIGURE O.6 Work remains the primary source of old-age support in most countries in East Asia and Pacific**  
*Percentages of total income of people ages 60 and above, in urban and rural areas, from labor, public and private transfers, and other sources, selected countries*



Sources: Giles and Huang 2015, based on data from CHARLS 2011; IFLS 2007; KLoSA 2010; ThaiSES 2011; and World Bank East Asia and Pacific Standardized Household Surveys, various years.

In rural areas, men who continue to work do so for 30–40 hours a week even at age 75, and women that age work 20–35 hours a week. In addition to what is formally counted as *work*, older people in East Asia and Pacific often bear significant caregiving responsibilities, a social and economic role that is not formally recognized in national accounts.

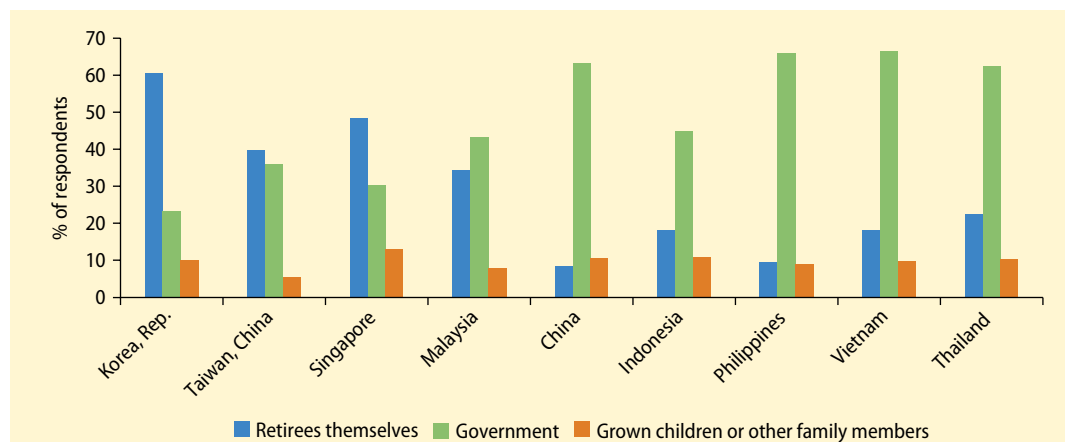
The roles of the state, families, and individuals in old-age support in developing East Asian and Pacific countries are distinctive. In developing regions such as Latin America and the Caribbean and Eastern Europe and Central Asia, the state plays an important role through generous and widespread pension systems. In contrast, older people in East Asia and Pacific rely more heavily on their own labor and the

support of their families, especially in rural areas. Labor income plays a critical role in old-age support in the region, with work income dominating other sources of support in rural areas in nearly all countries and in urban areas in most countries (figure O.6). In most countries, private transfers to elderly people are also more significant than public transfers. Familial support is even more pronounced when one factors in nonfinancial support.

Diversity is also growing across and within countries, rooted in initial conditions such as labor market formality, urban and rural shares, and formal social security coverage. Public transfers play an important role in urban China and in Mongolia, for example, but only a negligible role in Cambodia and

**FIGURE 0.7 Attitudes on the preferred source of financial support in old age and on the expected source of personal care are shifting in East and Southeast Asian economies**

*Percentage of adults reporting government, selves, or family as likely sources of support, selected economies*



Source: Jackson and Peter 2015.

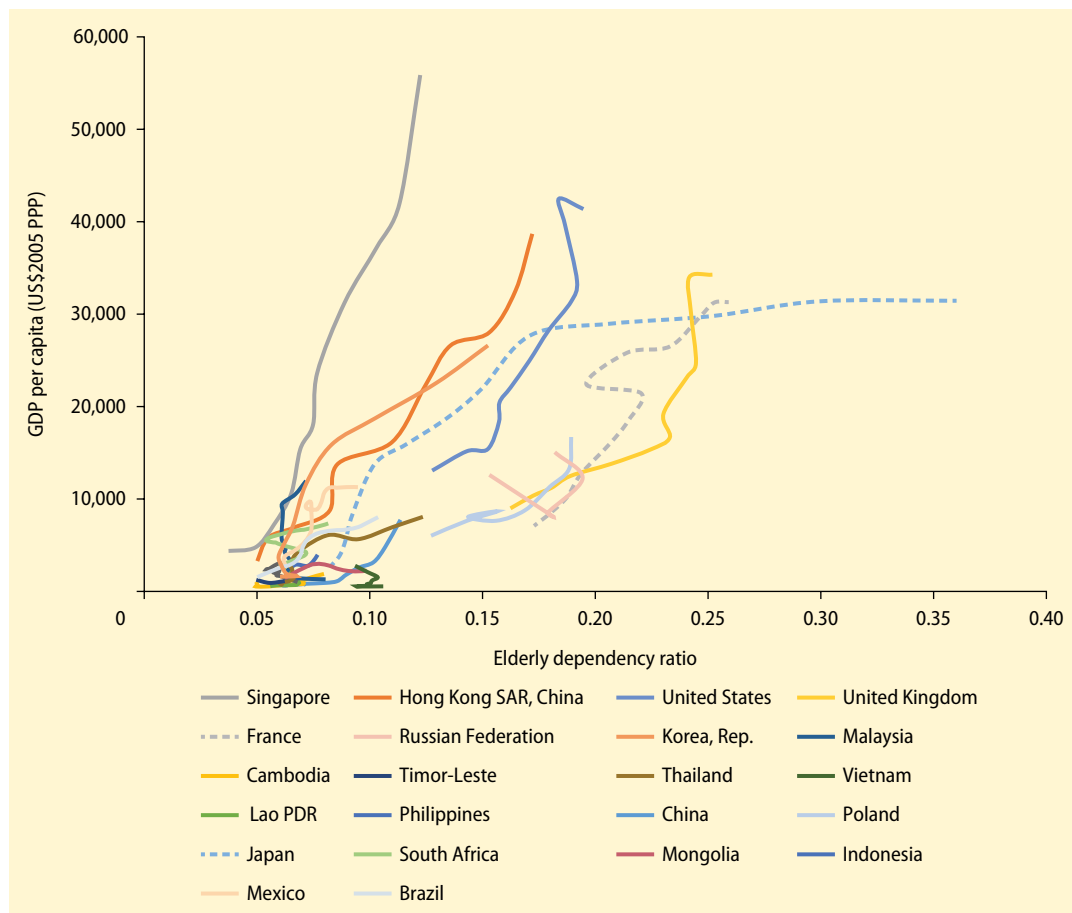
Indonesia, where informality is high and pension and social assistance systems are underdeveloped. Within China, differences between rural and urban areas are sharp. Although public transfers play a relatively modest role in old-age support in most of the region's countries, social expectations of the relative roles of the state, families, and retirees themselves in postretirement support are changing rapidly, with opinion surveys showing expectations of future state (rather than familial) support rising sharply (figure 0.7).

### Managing the effect of aging on growth and its drivers

Developing countries in East Asia and Pacific are getting old before getting rich. In particular, orange (largely aging middle-income) countries have been aging—in some cases rapidly—at low levels of gross domestic product (GDP) per capita (figure 0.8). This trend boosts the pressure to increase productivity growth in the region's developing countries. Even with sustained productivity growth, however, orange countries will not reach the income levels of red (richer and older) East Asian and Pacific economies or OECD and middle-income countries such as Mexico at similar points in the demographic transition.

Thailand provides a case in point. Although it has enjoyed solid growth in recent decades, the pace of aging is outstripping per capita income growth. It is following a path closer to that of Poland, which is now struggling with fiscal pressures from aging. Mongolia is experiencing stagnant GDP per capita and rapid aging.

The demographic dividend has played a substantial role in the region's remarkable growth story in recent decades. However, its younger countries will need to deepen reforms if they are to enjoy the same growth effects as older countries did at similar stages of the demographic transition. They can adopt productivity-enhancing reforms that will result in more manageable elderly dependency and GDP trajectories. Around one-third of the high per capita income growth in East Asia from 1960 to the 1990s can be attributed to the demographic dividend, with some estimates of the effect as high as 44 percent of growth in per capita income (Bloom, Canning, and Malaney 2000; Bloom, Canning, and Sevilla 2003; Bloom and Williamson 1998; Kelley and Schmidt 2005; this literature generally excludes the Pacific). In most East Asian countries, improvements in educational attainment, capital investment, and other

**FIGURE 0.8 East Asia and Pacific's developing economies are getting old before getting rich***Elderly dependency ratio by GDP per capita (2005 PPP), various economies, 1980–2010*

Sources: GDP data in 2005 US\$PPP for 1980 to 2010 from the World Bank's World Development Indicators database; elderly dependency ratios calculated as ratio of population over age 65 to population ages 15–64, using data from UN 2013.

Note: PPP = purchasing power parity.

factors compounded the pure demographic effect. For younger East Asian and Pacific countries currently in the midst of their youth bulges, for which rapid aging will come only in future decades, the key is to make productivity-enhancing reforms and investments now, so that they both maximize the demographic dividend and are prepared for rapid aging when it comes.

The tailwind to growth provided by demographics in older East Asian and Pacific countries has raised fears of a headwind as the size of the labor force declines and aging accelerates, but policy and behavioral responses can mitigate these forces. Although the risks

to growth are real, even rapidly aging countries have significant scope to act. Managing the growth and other macroeconomic effects of aging will require public policy action and wider behavioral change in a range of areas that span the life cycle. Priorities differ across country groupings:

- For red economies, slowing the structural decline in the size of the labor force will be the most critical challenge, because most economies are closer to the productivity frontier and therefore lack easy options for increasing labor productivity significantly. A sharper focus on increasing



female labor force participation, extending productive working lives, and, in some countries, increasing immigration of younger workers from within the region will be vital.

- Orange countries will need to sustain high productivity growth and undertake structural reforms of social security, health and long-term care, and labor market policies. Even if they make such changes, however, these countries will become aged societies at much lower levels of income than the red economies. They will need to mitigate the labor supply and fiscal effects of rapid aging through ongoing reforms of pension and health systems and labor policies to extend the working lives of their urban and formal sector workers as they undergo rapid urbanization. There are reasons for cautious optimism, because more educated cohorts will be better prepared for the prospect of longer working lives than previous generations.
- Green countries will enjoy favorable demographics as the youth bulge continues to feed their labor forces for the next few decades. The priorities are to establish conditions to realize maximum GDP growth from the demographic dividend (through investments that raise productivity and maximize youth employment) and to avoid adopting policies in areas such as pensions and health that are affordable now but would rapidly become unsustainable when aging accelerates. These countries' success in doing so will determine their readiness to manage aging when it accelerates over the coming two to three decades.

Aging has potentially deleterious effects on the labor force, capital formation and savings, and the budget, each discussed in turn below. Policies are needed to mitigate these effects.

### Mitigating the effects on the labor force

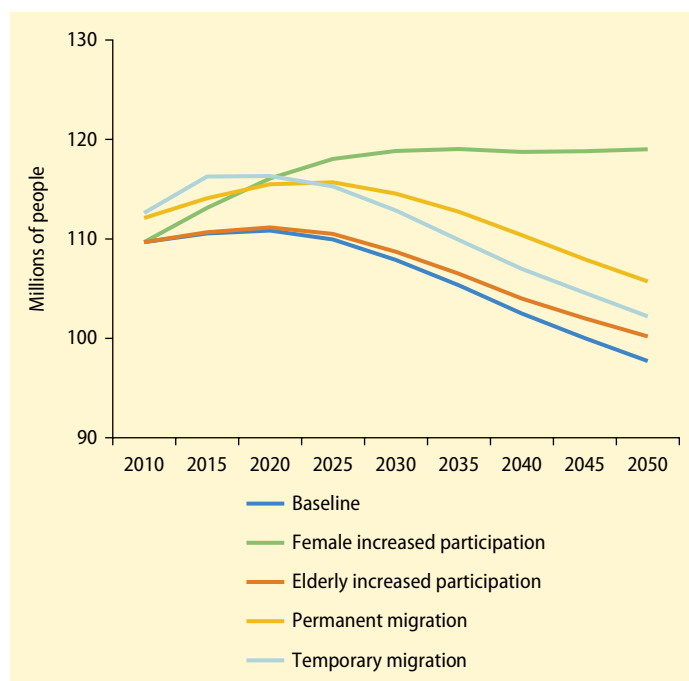
East Asian and Pacific countries can help reduce constraints to labor force participation and thus mitigate the demographic effect of aging on labor force size

in a variety of ways. Various labor market institutions and policies, as well as social attitudes, constrain productive labor force participation of groups that need to be mobilized to mitigate the structural decline in the workforce. The experience of red economies points to a distinctive East Asian approach to increasing labor force participation that combines incentives and mandates for employers. Channels for mitigating the effects of aging on the labor force include the following:

- *Extending productive working lives through labor market and social security policies.* Countries could gradually raise retirement ages and reverse incentives for early retirement; incentivize workplace adjustments to accommodate older workers (through, for example, flexible and part-time work arrangements and midcareer skill upgrading); and promote attitudinal change among employers. They could also reform labor market institutions such as seniority wage systems, which create barriers to productive employment of older workers.
- *Raising female labor force participation, with an emphasis on making child care available and providing subsidies to make it affordable.* The experience of richer East Asian and Pacific economies that adopted measures to promote female labor force participation demonstrates the challenges of shifting strong gender norms in the region.
- *Increasing immigration, which will require proactive efforts in both sending and receiving countries.* The different timing of aging across East Asia and Pacific offers opportunities for “chronological arbitrage.” Singapore and Hong Kong SAR, China, offer examples of the economic benefits of more open immigration policies. Other countries are exploring ways to overcome traditionally limited reliance on immigration. Although this area is politically challenging, the benefits for sending and receiving countries are clear in the context of rapid but asynchronous aging across the region.

**FIGURE O.9 Greater participation by women, older people, and migrants can mitigate the projected decline in the labor force in richer East and Southeast Asian economies**

*Projected changes in labor force size of destination economies with changes in female, elderly, and migrant labor force participation*



Source: Özden and Testaverde 2014.

Note: Destination economies are Hong Kong SAR, China; Japan; the Republic of Korea; Malaysia; and Singapore. Sending economies are Cambodia, Indonesia, Lao PDR, Mongolia, Myanmar, Papua New Guinea, the Philippines, Thailand, Timor-Leste, and Vietnam. Green line shows increase in labor force relative to baseline when women participate at same level as men. Red line shows increase given increased labor force participation by the elderly. Orange line shows increase given migration of 10 percent of labor force ages 25–35 (migrants stay permanently). Light blue line shows increase given temporary increase in migration of 20 percent of labor force ages 25–35 (migrants stay 10 years). Dark blue line shows the baseline.

The relative importance of these channels varies across countries. In the richest East Asian and Pacific economies, the effect is likely to be greatest from higher female labor force participation and, in some cases (for example, Japan and Korea), migration. In some middle-income countries, the potential role of increased participation by the elderly labor force is also significant (figure O.9). In contrast to these measures, policies to increase the birth rate through direct financial incentives such as birth grants or favorable tax treatment do not appear to have been effective in stemming fertility decline.

More flexible employment arrangements, support for parents through subsidized child care services, and broader shifts in gender and family relations are more likely to affect work and fertility decisions.

Efforts to mitigate the shrinking size of the labor force will be supplemented by improvements in labor force *quality* as a result of expanded access to higher levels of education in recent decades and ongoing efforts to improve educational quality. Capital deepening, which would increase per worker labor productivity, is also likely in response to labor force decline.

### The effects on savings and capital formation

Debates on aging often focus on potential declines in savings rates. The effects on household savings depend on the relative strength of two offsetting effects: (a) the compositional effect from a higher share of older people in the population and (b) the behavioral effect as people save more to finance a longer expected period of retirement. Predictions on which of these effects will dominate in East Asia and Pacific are mixed, but on balance they suggest that concerns about the effects of aging on savings and capital formation in the region may be overstated, for three reasons. First, household and corporate savings rates are high in the region and provide a more solid foundation than they do in other regions. Second, survey evidence points to flatter savings and age profiles in the region than in other parts of the world and to an increase in savings rates at all ages in the region in recent decades. Third, significant inefficiencies in financial markets in the region's developing countries suggest that scope exists for more efficient mediation of savings into capital formation and increased productivity.

### The effects on fiscal balances

Even if East Asia and Pacific avoids severe adverse growth effects from rapid aging, the fiscal risks of business as usual in core

programs such as pensions, health, and long-term care are substantial. Major fiscal risks from aging are already manifesting themselves in the region and will require policy leadership to mitigate.

Projections of pension and health spending reveal significant fiscal pressure in coming decades in the absence of reform. Stylized projections by broad country type in Asia-Pacific Economic Cooperation (APEC) member countries through 2070 show economies converging to ratios of pension spending to GDP that are 8 to 12 percentage points higher than current levels (figure O.10). Cash flow deficits are expected to emerge in most defined benefit schemes in developing East Asian and Pacific countries, with deficits of 1.4 to 4.5 percent of GDP by 2040. Health care spending projections also point to higher public spending (though lower than increases in pension spending). Aging accounts for about one-third of the projected increase in public health spending in several developing countries in the region, and the effect is even higher in China (Hinz and Zvinienė 2011).

A more complex (and uncertain) picture of fiscal pressures from aging emerges when debt dynamics are incorporated into fiscal projections. Where increased age-related spending drives up deficits and they are funded through debt, the potential for an upward spiral in public spending is substantial. The risk is higher where significant shares of debt are denominated in foreign currency. The importance of factoring in demographics in scenarios of public debt should therefore not be underestimated.

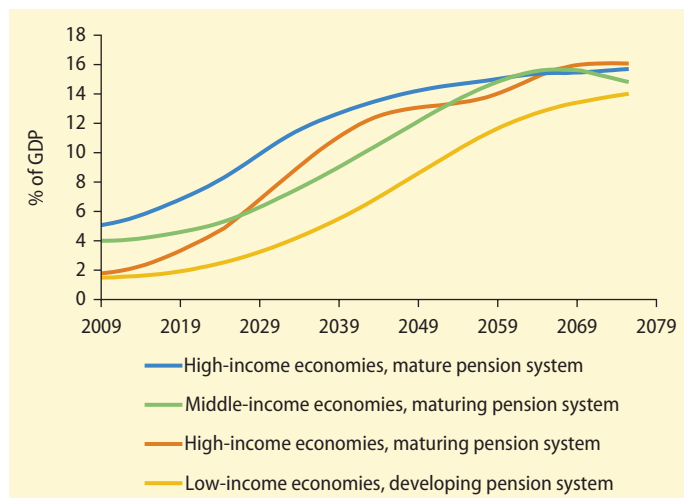
### Developing pension, health, and long-term care systems for aging societies

The key areas of pensions, health, and long-term care face several common reform challenges:

- Most orange and some green countries are expanding policy-driven coverage—achieving universal health coverage,

**FIGURE O.10 Across APEC, pensions will eat up a larger and larger share of GDP in coming decades without reforms**

*Projected pension spending as a percentage of GDP in APEC economies (no-reform scenario), 2009–75*



Source: Hinz and Zvinienė 2011.

Note: APEC = Asia-Pacific Economic Cooperation.

broadening pension coverage, and exploring the role of the state in long-term care. A growing commitment to shifting some of the burden of old-age financial support and health care costs from families and individuals to the state through pooling mechanisms can be seen. The gradual shift of financing from private to public sources exerts significant pressure on public spending.

- The financing models for pensions and health are increasingly mixed, illustrating the limitations of contributory financing models in settings with high labor market informality. More nuanced blends of contributory and general revenue financing are emerging that also aim to prioritize inclusion of the poor and near-poor. For health care coverage in particular, the emphasis has been almost entirely on expanding coverage through general revenue financing.
- Pension and health systems face the challenges of balancing coverage, adequacy, and sustainability. To date, the emerging approach in developing East Asian and Pacific countries has been to prioritize

coverage expansion, albeit often with shallow financial protection.

- Pension systems in many East Asian and Pacific countries are fragmented, with separate schemes for the civil service, the military, and state-owned enterprises; often fragmented pooling of contributions, which leads to variable benefits and undermines the insurance function; and distinct rural and urban systems in China. Health financing is characterized by similar challenges.

## Pensions

Pension systems in East Asia and Pacific are quite heterogeneous. The pension challenges facing countries in the region vary not only because of their disparate demographic situations, but also because of past policy choices and the nature of their labor and capital markets. Richer (red) economies have achieved wide coverage of their systems with better financial sustainability than other rich economies, but they face challenges of pension adequacy and hence old-age financial protection. Middle-income (largely orange) countries are grappling with the dual challenges of improving the sustainability of their existing or legacy systems while trying to expand coverage to large uncovered informal sectors. For poorer and younger (green) countries, the key issues are choosing a pension system model that can achieve significant coverage over time. These countries need to avoid overreliance on contributory pension models, which have proven ineffective in extending coverage to informal sector workers.

Addressing the coverage gap, particularly in countries with high levels of informality, will require policies that move away from sole reliance on payroll taxes to finance pensions. This paradigm shift in the way pension systems have historically been financed is motivated by the limitations of a traditional social insurance approach, which risks losing the race between pension coverage expansion and rapid societal aging.

The good news is that considerable innovation is already evident within East Asia and Pacific. In response to the persistent failure of contributory pension schemes in closing the coverage gap, Chile (2008), China (2011), Korea (2004), Mexico (2012), and Thailand (the 2000s) all rapidly expanded their social pensions and budget-financed matching contribution schemes for informal sector workers (see Holzmann, Robalino, and Takayama 2009 for regional and global experience with social pensions; Hinz et al. 2013 for experience with matching defined contributions). Countries in the region have also expanded health insurance coverage, through heavily subsidized health insurance premiums. Use of consumption taxes in Japan and budget support for the contributory pension scheme in China are driven partly by reluctance to raise payroll tax rates further. The trend is not uniform, however, as evidenced by the introduction of a social insurance scheme in Lao PDR and legislation in Indonesia and Myanmar that make these countries among the last in the world to rely on contributory approaches to expanding pension provision. The experience of dozens of countries that had once faced the same choice suggests that it may not be the appropriate path.

Reform should be based on the premise that the redistributive element of the pension system should be financed from general revenues and clearly distinguished from the insurance or savings component, which ideally should be financed by individuals on an actuarially fair basis (that is, identified sources of financing are sufficient to pay the expected expenditures). The simplest approach would be to eschew the mandated scheme altogether and instead broaden the coverage of a social pension (for example, by making it universal or means tested) and complement it with a voluntary retirement savings scheme. In New Zealand, which adopted this approach, the opt-in default for a voluntary defined contribution scheme led to relatively high participation rates. This option is not likely to be realistic in countries that already have contributory mandates, however, and it would be difficult

even for countries such as Myanmar and Timor-Leste, which have nascent contributory systems. These countries, along with Indonesia, should aim for actuarially fair and modest schemes, leaving redistribution to be financed through general revenues or through social assistance or social pensions.

The wider group of East Asian and Pacific countries with mature, but low-coverage mandated contributory systems should also consider shifting the balance of pension system financing toward general revenue-financed redistribution and modest target benefit levels, but in a way that does not compromise incentives to participate in the contributory scheme. Doing so requires strong coordination between social and contributory pension design and implementation. The most feasible path for such countries is likely to mix residual mandatory contributory systems with subsidized voluntary contributory approaches and social pensions targeted to wider or narrower populations, depending on the level of coverage achieved through contributory mechanisms. Countries such as China, Korea, and Thailand provide distinctive models of this approach. Although the adequacy of pensions for the majority is limited currently, sustained growth should allow for deepening financial protection over time.

## Health

In the health sector, the effects of aging are likely to be significant. In East Asia and Pacific and globally, age-specific profiles of expenditures are typically a J-shape, with health spending rising steeply toward the end of life. Consequently, a common assumption is that aging will generate substantial increases in health care spending. In fact, the effects of aging on health expenditure are complex. Globally, technology and policy choices regarding the financing and delivery of health care, rather than aging itself, are the biggest drivers of health spending. Aging does add to health costs (accounting for about one-third of spending increases in several East Asian and Pacific countries) (Somanathan 2015). However, taking into account improvements

in healthy life expectancy in assessing aging's effects over time is important.

The structural reform challenges facing health delivery systems in the region will become more acute as populations age because the increased incidence of chronic NCDs with age means both that the share of people living with these conditions will increase and that larger shares of people will be living with multiple chronic NCDs. Health delivery systems in East Asia and Pacific are ill prepared for the NCD epidemic, especially in countries with rising shares of older people, for several reasons. First, these systems tend to provide low-value, high-cost services that are likely hospital-centric; preventive and primary care services tend to be ineffective and of poor quality. Too often, better health is incorrectly attributed to more consultations, admissions, drugs, and procedures. Second, too little attention is paid to the prevention, early diagnosis, treatment, and control of health conditions. When a diagnosis is made, care is rarely coordinated across provider levels, resulting in service duplication and lack of continuity. In addition, health care is often sought too late, leading to high-cost treatment in expensive acute care hospitals. Third, the lack of effective referrals, gatekeeping, and postdischarge care contributes to costly (and avoidable) readmissions. Fourth, incentives embedded in provider payment systems encourage physicians to overprovide services or provide unnecessary care.

Health system shortcomings and welfare consequences are more severe for older people, who are much more likely to receive inpatient care (often unnecessarily), use more pharmaceuticals than average (and hence are more affected by poor pharmaceutical purchasing and prescription practices), and experience substantially higher out-of-pocket spending and higher rates of catastrophic health spending. In China in 2011, about 32 percent of households with a mean age of 60 or more incurred out-of-pocket health payments of more than 25 percent of total nonfood spending; in Vietnam in 2012, the figure was 30 percent of households

(Somanathan 2015). Older people have higher comorbidity rates, which require a mixed set of services and more complex management of movement between levels of the health system. They also experience functional and cognitive decline, which puts new demands on health systems. For all of these reasons, countries with aging populations need to create health systems in which prevention and treatment are offered in a coordinated manner over a sustained period of time while enabling individuals to assume greater responsibility for managing their own care.

To reorient health systems to meet the reinforcing challenges of universal health care, NCDs, and aging, countries will need to pursue several reforms in parallel that together will take at least a generation to achieve. An overarching need is to transform health delivery systems by strengthening primary care services, shifting care away from acute care hospitals, reducing overprovision, and improving coordination among providers. The quality of the health workforce also needs to be substantially improved. These reforms will help contain costs in the long term, but they will require additional spending in the medium term.

Because mobilizing new resources to meet all of the additional requirements of service delivery reforms would simply not be sustainable, generating efficiency savings to gain better value for money from existing health systems is imperative in East Asia and Pacific. Although the reformed service delivery model will generate significant efficiency savings over time, the initial investment costs are likely to be substantial. Meanwhile, other policy priorities—not least of which is the policy commitment to achieve universal health coverage—will continue to place significant demands on East Asian and Pacific governments' budgetary allocations to the health sector. Health system inefficiencies are already exerting pressure on tax and social health insurance revenues. Service delivery reforms are thus critical to ensure the sustainability of health systems for aging populations and justify additional investment.

Health systems will need to spend more efficiently if the benefits of system transformation are to be realized and afforded. Fee-for-service provider payments will need reform to reduce overprovision of services and overcharging for care. Global experience with payment reforms points toward case-based or diagnosis-related group approaches for secondary and tertiary care, mixed-method payments for primary care, and global budgets to contain costs. Having a large single purchaser of health services with strategic purchasing capacity has also proven critical for cost containment (Somanathan 2015).

Many countries in the region will need to continue reforms of pharmaceutical procurement to rein in the high prices paid by governments and patients. These countries can learn from experiences both within the region and globally in purchasing and other practices.

Practices to control health technology diffusion, such as health technology assessments, are also crucial to control health spending growth. East Asian and Pacific countries could begin by instituting transparent and evidence-based processes for prioritizing new technologies and drugs, using the findings from more established health technology assessment agencies to inform the prioritization processes. This challenging and interrelated set of reforms is necessary even without aging. Accelerated aging makes reform even more essential and urgent.

## Long-term care

Formal long-term care (LTC) systems in developing East Asian and Pacific countries remain nascent. However, a growing number of aging countries are grappling with the appropriate role of the state in an area that has traditionally been the domain of families, communities, and the health system.

Rapid aging and social change have exposed the limitations of traditional informal modes of LTC for frail elderly people in the region. Part of the response has been default reliance on health systems, but this

approach is costly and complicates health reform efforts. Proactive policy choices in the LTC domain are therefore important. They require careful planning with respect to their interaction with informal care systems and formal health and welfare systems. Whatever the design choice, countries need to craft explicit (rather than costly default) LTC strategies, with a strong emphasis on home- and community-based care. “Aging in place” is important because it not only provides positive experiences for older people, but also is more sustainable than other options as the elderly population grows.

### Addressing cross-cutting challenges in aging

In addition to sector-specific challenges, a range of cross-cutting considerations underpins policy choices and societal responses. Such considerations will require more integrated ways of approaching not only public policy and service delivery systems but also a broader societal need to forge consensus within and across generations.

### The multisectoral nature of aging

One of the key challenges in shaping public policy responses to aging is its inherently multisectoral nature. Like areas such as early childhood, aging presents inherent challenges to the institutional and policy setups of governments because it cuts across many sectors and stages of life. Governments are typically not organized to respond multisectorally. Although a number of East Asian and Pacific countries have recognized this challenge and established national aging commissions to promote more holistic thinking on aging, these agencies tend to be primarily advocacy bodies that may lack the political and bureaucratic clout to drive whole-of-government approaches.

Some richer countries have sought to bring a wider view to sectoral policies. One example is the periodic intergenerational reports produced for the Australian Treasury, which help set long-term expenditure and policy priorities for age-related programs. Japan is

better placed than some others institutionally. Its consolidated health, labor, and welfare ministry brings a critical mass of age-related policies and programs under a single body.

### The political economy of reform and behavioral change

Many of the policy reforms needed to promote healthy and productive aging are politically difficult and may challenge societal norms. Extending working lives by raising the retirement age has proven politically challenging in many parts of the world. Increasing female labor force participation involves deeply rooted cultural norms and, in some cases, trade-offs (grandparents who work late into life will not be available to provide the informal child care and aged care on which working-age households currently rely, for example).

The performance on immigration from younger to older countries in the region is mixed. Health system reform is notoriously difficult, for both providers and the wider population, and changing ingrained lifestyle habits that drive the NCD epidemic is a generational challenge. All these measures will require patient building of social consensus.

Intergenerational equity and political economy is also a wider challenge. In other parts of the world, older people have successfully lobbied for their interests, at times at the cost of younger generations. Red economies in East Asia and Pacific seem to have balanced the interests of different generations and shared the costs and benefits of an aging population more equitably than have countries in other parts of the world. The evolution of the political economy dynamics around aging will be an important consideration in shaping policy responses.

### The roles of public policy and market forces

Another broad issue is the appropriate roles of public policy and market forces in shaping the response to rapid aging. Proactive public policy will be required, but it will not necessarily

be the correct response to every challenge. A careful balance of mandates, incentives, and reliance on market forces will be required. The experience of red economies in East Asia and Pacific in extending working lives illustrates how supportive public policies are gaining more traction as the market forces of supply and demand have increased the appeal of older workers. The most effective public policies will sometimes involve a retreat from state direction where policies (such as rigid seniority wages or unnecessary restrictions on women's work) hinder the play of market forces that would be expected to increase the employment of older people and women.

### Knowledge gaps on aging

Much remains unknown about aging, in East Asia and Pacific and globally. Understanding long-term trends and policy effects is often speculative. Significant knowledge gaps remain—on the interaction of labor and savings market behavior and rapid social security reforms; the societal and individual behavioral change in the face of rapid growth, urbanization, and changing family structures; the way to reverse ultralow fertility rates in richer East Asian and Pacific economies; the productivity of older workers and the cost-effectiveness of policies to extend working lives; the cross-country dimensions of aging in the region with respect to migration, capital flows, and other factors; and more broadly, the roles of market forces and public policy in promoting healthy and productive aging.

Even an understanding of the most fundamental question of the trajectory of fertility and aging has been imperfect. The speed of aging in the region and its diverse cultural and political economy contexts suggest that caution is therefore needed in predicting future trends.

### Conclusion

Aging will fundamentally reshape societies and economies in East Asia and Pacific, but the shape of the future is very much in the

hands of policy makers, communities, and citizens. Demography is a powerful force in development, but it is not destiny. Policy makers in the region have the potential to shape responses that increase the chances for healthy and productive aging and promote societies in which the compact between generations is one that is fair and realizes people's potential at all ages.

In this process, East Asian and Pacific economies can learn from the experiences—good and bad—of richer and older countries, as well as from one another. Crafting appropriate policies will inevitably involve experimentation and course correction. It will also require strong leadership in the face of inevitable reluctance to embrace change. Fortunately, the region's strong economic and cultural traditions place it in a favorable position to create environments in which citizens will live long and prosper.

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# **The Demographic Transition and Well-Being of Older People in East Asia and Pacific**





# The Demographic and Epidemiological Transitions in East Asia and Pacific

1

## Introduction

In recent decades, East Asia and Pacific has undergone perhaps the most dramatic demographic transition ever seen, and it is on course to continue that trend. Very fast drops in fertility rates, coupled with rapid extensions of life expectancy beyond age 60, have resulted in an unprecedented pace and scale of population aging in East Asia. At the same time, the region is characterized by remarkable variation, ranging from the “super-aging” societies of Japan and the Republic of Korea, to middle-income countries with rapidly growing aging populations, to the youthful societies of the Philippines and Pacific Island countries. This diversity provides rich lessons—both positive and cautionary—from within the region on managing rapid aging. Whether such unprecedented trends are alarming in large part reflects our understanding of dependency among growing elderly populations, because current definitions rather mechanically conflate chronological age with functional limitation.

In parallel, East Asia and Pacific is experiencing an accelerated epidemiological transition, driven in part by population aging but also by factors such as rapid urbanization and rising incomes. On the positive side, both life expectancy and healthy life expectancy<sup>1</sup> have continued to increase steadily, and communicable diseases have been brought largely under control in most economies in the region, except for some low-income countries and Pacific Island countries that have a double burden of disease. However, the rise of noncommunicable diseases (NCDs) has been dramatic, and they now dominate the disease burden throughout the region. Older people are more prone to NCDs and experience much higher comorbidities, which will place new demands on health systems. Another problem is that in many East Asian and Pacific countries today, middle-aged populations exhibit worse lifestyles and NCD prevalence than the current elderly did at the same ages. This situation raises concerns about future deterioration of health in the elderly in the absence of major lifestyle and health system reforms.

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This chapter is based on background papers by Thomas Flochel, Yuki Ikeda, Harry Moroz, and Nithin Umaphathi (2014) and by Aparnaa Somanathan (2015), with inputs from Ying Ho.

To provide context for the remainder of the report, this chapter discusses both the demographic and the epidemiological transitions taking place in East Asia and Pacific. The next section describes the demographic transition. It highlights aging trends across the region and compares the transition to those in other regions of the world. It also examines the factors underlying such aging trends and discusses trends in working-age population and dependency ratios. The remainder of the chapter focuses on the epidemiological transition, providing more in-depth discussion of trends in life expectancy and the growing burden of NCDs.

### The demographic transition in East Asia and Pacific

East Asia and Pacific is a diverse region in terms of the share of older people across countries, ranging from levels found in member countries of the Organisation for Economic Co-operation and Development (OECD) to

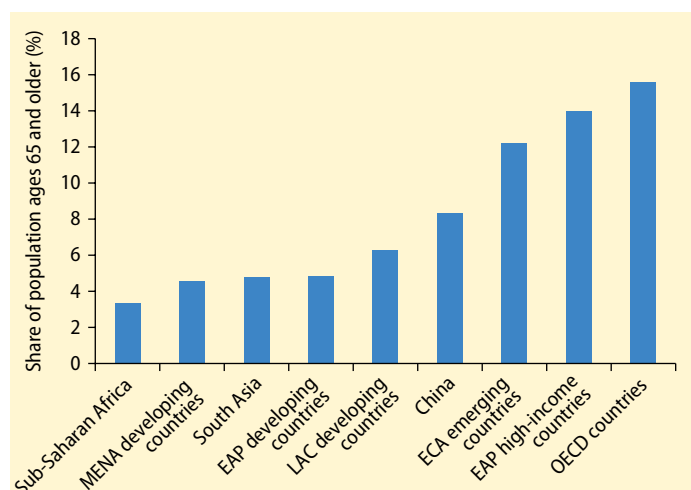
modest shares of elderly similar to those found in the Middle East and North Africa and in South Asia. Overall, in East Asia and Pacific, the share of the population ages 65 and above accounted for an average of around 7 percent of the total population in 2010 (figure 1.1). This share is similar to that in Latin America and the Caribbean (6 percent) and somewhat higher than the shares in the Middle East and North Africa and in South Asia (5 percent). However, the regional average for East Asia and Pacific conceals enormous diversity: high-income countries have shares of older people that are close to the OECD average (around 14 percent, which means that they are *aged societies* according to the United Nations definition), whereas many young and poorer countries have very modest shares of older people (for example, only 3 percent of the populations of Papua New Guinea and Timor-Leste are 65 years old and above—the same as the average for Sub-Saharan Africa).

Despite the mixed picture on shares of older people, in terms of absolute numbers East Asia and Pacific has easily the largest regional population of individuals who are 65 years old and above. China alone is home to more old people than any other developing region. In 2010, East Asian and Pacific economies were home to around 187 million people ages 65 and above (around 150 million of them in developing countries). This number represents around 36 percent of the global population in this age group. China is responsible for the bulk of this elderly population, with nearly 114 million people ages 65 and older (figure 1.2).

East Asia and Pacific is also aging more quickly than any other region in history. The population ages 65 and over in many countries in the region will increase from 7 percent to 14 percent of the total population in just two or three decades—a change that took 45 years in the United Kingdom, 69 years in the United States, and 115 years in France (Kinsella and He 2009; see also figure 1.3).<sup>2</sup> Five-year growth rates of the population ages 65 and above have been higher in East Asia and Pacific than in OECD and emerging Eastern European and

**FIGURE 1.1 East Asia and Pacific is a diverse region in terms of the share of older people**

Share of population ages 65 and above, 2010, selected regions and East Asian and Pacific subregions



Source: World Bank estimates based on data from UN 2013.

Note: EAP = East Asia and Pacific; ECA = Eastern Europe and Central Asia; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; OECD = Organisation for Economic Co-operation and Development. EAP developing excludes China.

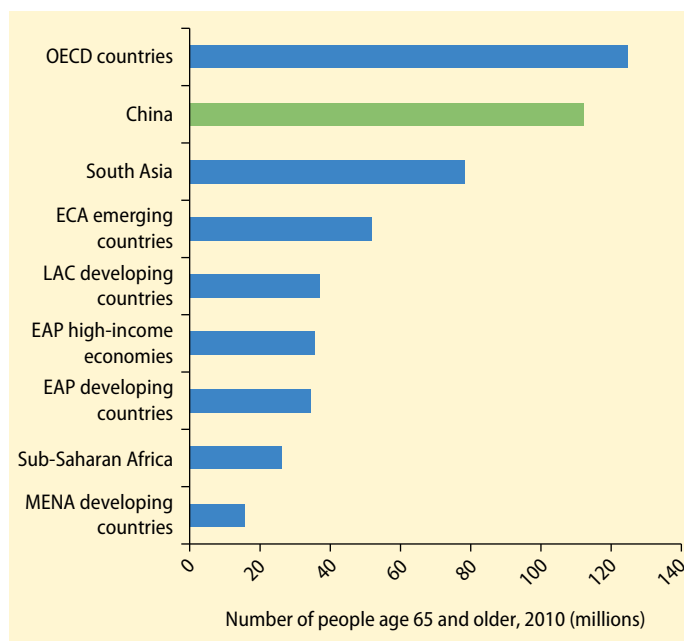
Central Asian countries in each 20-year period from 1955 to 2055. Between 2015 and 2034, five-year growth rates of the population ages 65 and above will average 22 percent in East Asia, second only to rates in the Middle East and North Africa. As a result, by 2060, the average share of population ages 65 and over in East Asia (22 percent) will approach that of the OECD countries (24 percent) and Eastern Europe and Central Asia (26 percent), with the share in high-income East Asian and Pacific economies and in China being even higher (figure 1.4). Whereas in 2010 only 1 of the 25 “oldest” economies (by share of population ages 65 and older) was in East Asia (Japan), by 2060 five East Asian economies are projected to be among the 25.<sup>3</sup>

Although most of the region will age quickly, the onset of aging varies, and some countries will experience especially rapid aging. Figure 1.3 shows the different points in time and speeds at which East Asian and Pacific economies have moved or will move from being classified as aging to aged (that is, moving from 7 percent of the population ages 65 and older to 14 percent). At one extreme, Japan completed its transition to an aged society decades ago. Others, including China, Korea, and Thailand, are already aging, and the poorer societies in the region have decades to go before they cross that threshold (although Cambodia and Myanmar will do so much sooner). In terms of speed of aging, the typical East Asian and Pacific economy shown in figure 1.3 moves from aging to aged in around 25 years, but countries such as Indonesia, Korea, and Vietnam are notable for their even more accelerated demographic transitions. Equally notable is that nearly all East Asian and Pacific countries move from aging to aged societies relatively quickly once the 7 percent threshold is reached (with exceptions such as Papua New Guinea and the Philippines).

The population of those ages 80 and above—the “oldest old”—will also grow faster in East Asia and Pacific than in any other region (figure 1.5). In 2010, the oldest old represented a very small portion of

**FIGURE 1.2 East Asia, led by China, has more old people than any other region**

*Number of people ages 65 and above by region and East Asian and Pacific subregion*



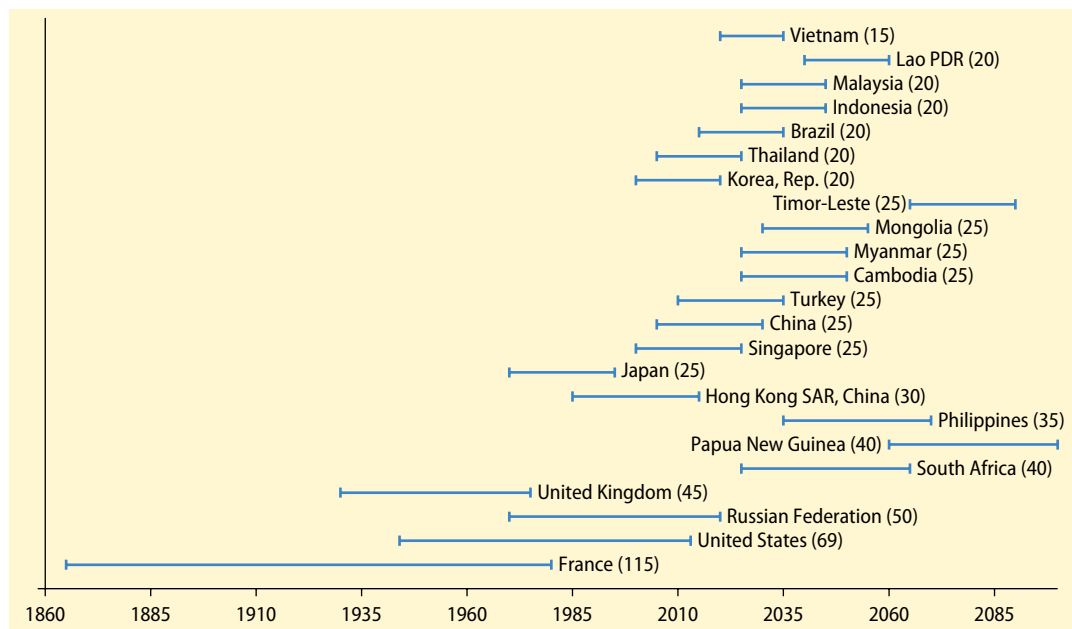
Source: World Bank estimates based on data from UN 2013.

Note: EAP = East Asia and Pacific; ECA = Eastern Europe and Central Asia; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; OECD = Organisation for Economic Co-operation and Development. EAP developing excludes China.

the population across all world regions, including in East Asia and Pacific. However, the region’s average population of those ages 80 years and above will increase by 6.2 percentage points on average between 2010 and 2060, more than in any other region. For high-income East Asian and Pacific economies, both the rate and ultimate level are even more pronounced, rising by 14 percentage points to 17 percent of the population. This group is important for future trends in demand for long-term care, with 50 and 64 percent of long-term care clients in Korea and Japan, respectively, being 80 years old and above.

The demographic diversity of economies in East Asia and Pacific suggests three groups, which are used for much of the analysis in this report.<sup>4</sup> Hong Kong SAR, China; Japan; Korea; and Singapore—the wealthiest

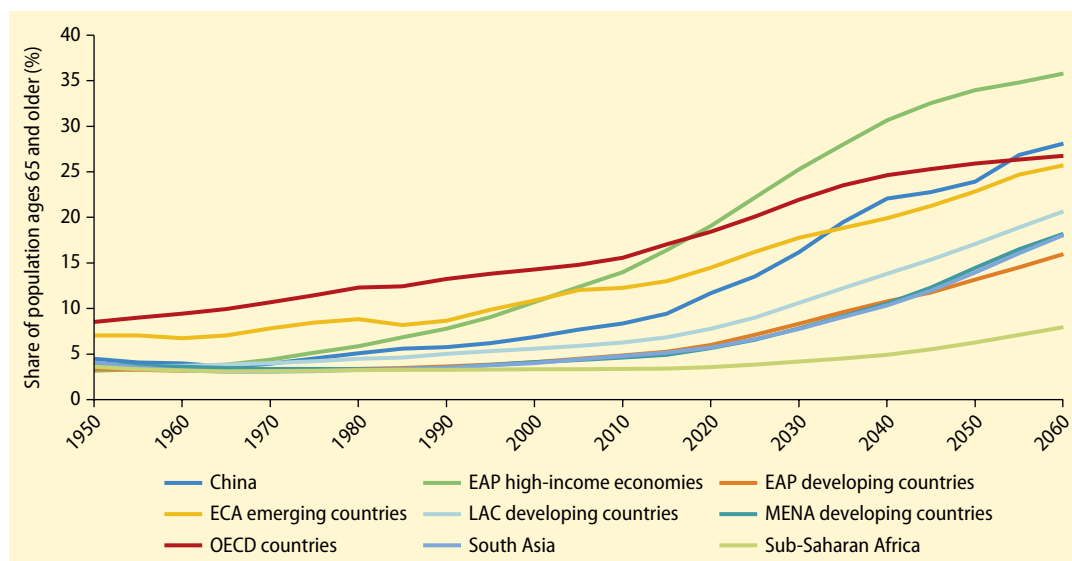
**FIGURE 1.3 East Asian and Pacific economies are aging more quickly than other economies in the past**  
*Years to move from 7 to 14 percent population share 65 and older and the start and end years of transition*



Sources: World Bank estimates based on data from UN 2013 and Kinsella and He 2009.

Note: Figure shows starting and ending year for transition from 7 percent (aging) to 14 percent (aged) of population ages 65 and older. Aging and aged thresholds are based on United Nations definitions. East Asia and Pacific economies rounded to five-year increments.

**FIGURE 1.4 The share of elderly population in East Asia and Pacific will converge with that of OECD countries by 2060**  
*Share of population 65 and older by region and East Asian and Pacific subregion, 1950–2060*



Source: World Bank estimates based on data from UN 2013.

Note: EAP = East Asia and Pacific; ECA = Eastern Europe and Central Asia; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; OECD = Organisation for Economic Co-operation and Development. EAP developing excludes China.



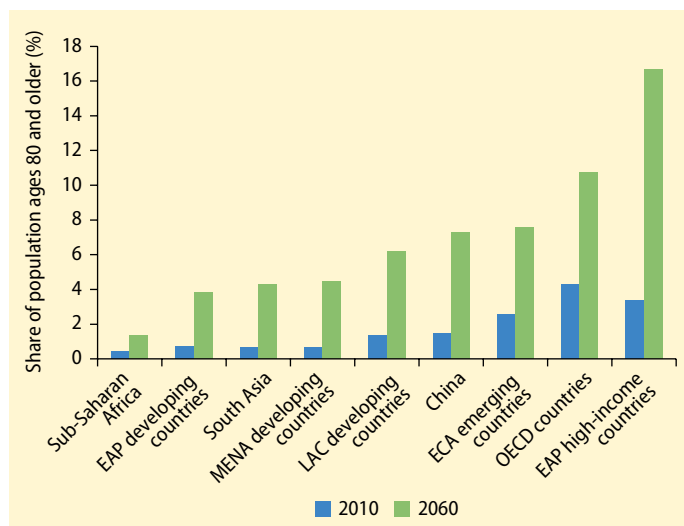
economies in the region—are called the “red” economies. Red economies have the highest number of people of advanced age, with an average of 14 percent of their total populations 65 years old and above (figure 1.6). China, Indonesia, Malaysia, Mongolia, Thailand, and Vietnam represent a middle group of economies that are currently aging very quickly. An average of 6 percent of the population in these “orange” economies was 65 years old and above in 2010, and across the group, an acceleration of aging can be seen from the middle of this decade. The third group consists of Cambodia, the Lao People’s Democratic Republic, Myanmar, Papua New Guinea, the Philippines, and Timor-Leste. These “green” economies are still quite young—an average of 4 percent of their populations was 65 years old and above in 2010—but they will begin to age in coming decades. This typology also holds for the population 80 years of age and above: by 2060, the oldest old population will average 17 percent in red economies, 7 percent in orange economies, and just 3 percent in green economies.

The pace and progression of aging are reflected in the relative strength of concerns about aging among East Asian and Pacific populations. This comparison can be seen in figure 1.7, which shows findings of the 2013 Pew Global Attitudes Project survey on the share of people reporting aging as a “major problem” in their countries (Pew Research Center 2014). Three countries in the region easily rank highest, and even Indonesia (with relatively young demographics) shows results similar to those of the United States. In one sense, the results are positive in terms of the societal awareness of the challenges of aging populations, but in another sense they reflect genuine concerns about the readiness of countries to manage aging effectively.

In most countries in East Asia and Pacific, the decline in fertility rates has been the major driver of population aging. Fertility rates declined dramatically from 5.91 children per woman in 1960 to 2.46 in 2005—significantly faster than the global

**FIGURE 1.5** The population of “oldest old” will increase more in East Asia and Pacific between 2010 and 2060 than in any other region

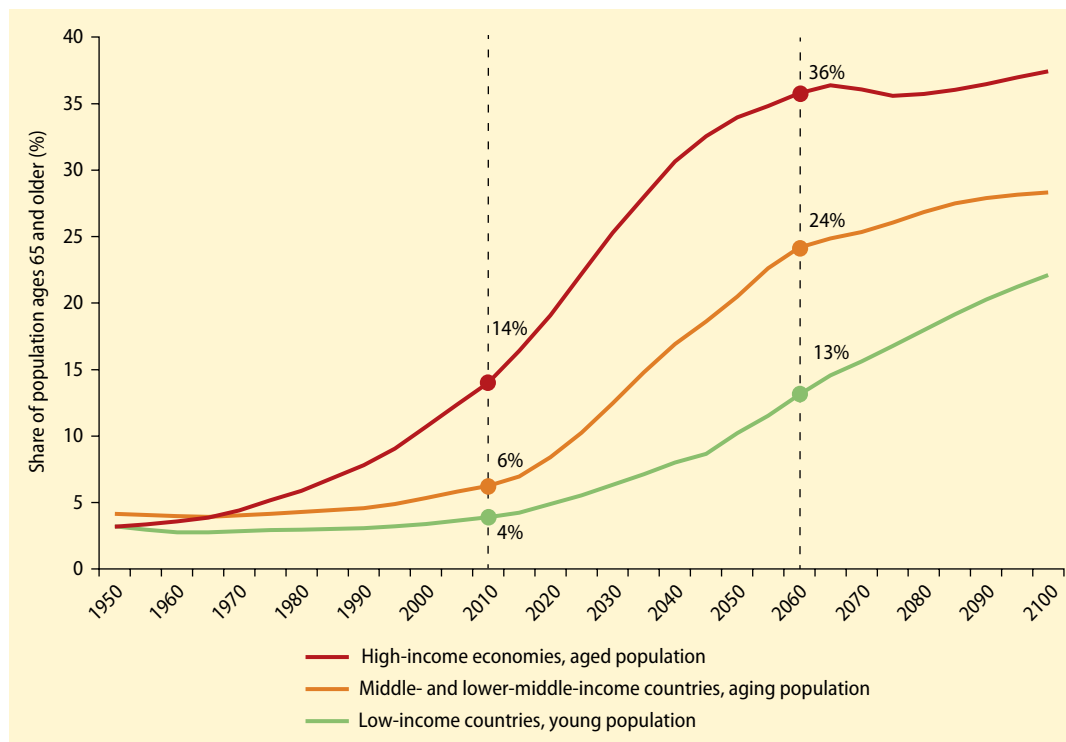
*Percentage of population 80 years old and above by region and East Asian and Pacific subregion, 2010 and 2060*



Source: World Bank estimates based on data from UN 2013.

Note: EAP = East Asia and Pacific; ECA = Eastern Europe and Central Asia; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; OECD = Organisation for Economic Co-operation and Development. EAP developing excludes China.

decline from 5.51 to 3.03 children per woman. Fertility rates in several East Asian countries are now among the lowest in the world. The decline in fertility can be seen across the region but has occurred unevenly across countries. The older East Asian countries have extremely low total fertility rates (TFRs), averaging 1.28 children per woman (figure 1.8) in 2010. Although younger countries in the region have also experienced significant declines in TFR, their rates are more than twice as high (3.45 children per woman). The orange economies fall between the two extremes with an average TFR of 1.93. In this intermediate group, 2010 TFRs had fallen to 1.66 in China, 1.41 in Thailand, and 1.75 in Vietnam. Fertility rates are projected to continue to decline in the youngest countries and to flatten in the middle ones. Notably, the United Nations (UN) projects a modest increase in fertility rates in the oldest countries. However, as the UN itself recognizes, the recovery of TFRs from extremely low levels in the oldest countries in the region

**FIGURE 1.6 Three distinct aging patterns are apparent among East Asian and Pacific economies***Percentage of population 65 years old and above*

Source: World Bank estimates based on data from UN 2013.

Note: The high-income "red" economies, which have an aged population, include Hong Kong SAR, China; Japan; the Republic of Korea; and Singapore. The middle- and lower-middle-income "orange" countries with an aging population include China, Indonesia, Malaysia, Mongolia, Thailand, and Vietnam. The low-income "green" countries with a young population include Cambodia, Lao PDR, Myanmar, Papua New Guinea, the Philippines, and Timor-Leste.

is far from certain and is driven to a significant extent by the convergence assumption used in the UN models (see box 1.1 regarding population projections).<sup>5</sup>

Although not as dramatic, changes in age-specific mortality are also a notable part of the aging story, with sharp improvements in early life conditions increasing life expectancy in East Asia and Pacific faster than in any other region of the world. Dramatic gains in life expectancy at birth in the region, from less than 45 years in 1950 to 74 years today, mirror the decline in mortality rates (figure 1.9). The three groups of East Asian and Pacific economies exhibit distinct patterns of life expectancy. Life expectancy of individuals ages 60 and 80 has increased much more quickly in recent

years in the red economies and is currently much higher than that of their peers in the orange or green economies. Average gains in life expectancy in the green, or youngest, economies have been much less dramatic, so the gap in life expectancy at age 60 between the region's youngest and oldest economies is projected to grow from around 3 years in 1950 to 7 years in 2010 and to 10 years by 2060. The reverse is true of the gap in life expectancy *at birth* between the green and red economies: the gap is projected to narrow from 19 years in 1950 to 15 years in 2010 and to 14 years by 2060. This inversion is consistent with the youngest economies becoming younger because mortality rates are lower at younger ages, whereas the oldest economies become older through

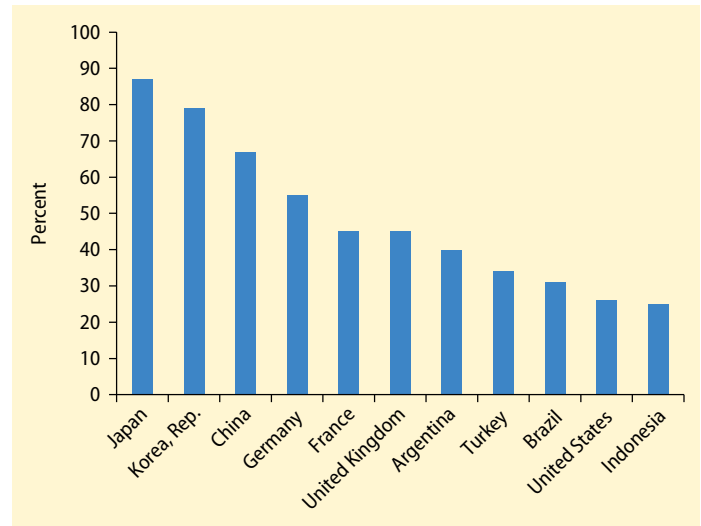
extensions in life expectancy at the oldest ages. Bloom, Canning, and Finlay (2010) calculate that the proportion of individuals 0 to 5 years of age in East Asia and Pacific would have been 7.0 percentage points higher in 2005 had fertility rates remained at 1960 levels rather than declined. This contrasts with a 0.1 percentage point *decline* in the same population had age-specific mortality rates remained at 1960 levels.<sup>6</sup> In the future, the low fertility and mortality rates that evolved between 1960 and 2005 will continue to drive population aging as those birth cohorts move through the age distribution, even as the future rates themselves are projected to stabilize.

These uncertainties and assumptions mean that all population figures and projections should be treated with caution. The selection of fertility scenarios, for instance, affects conclusions about the evolution of population aging in the region. This report—in line with common practice—uses the medium fertility scenario throughout. Figure 1.10 shows the effect of different TFR assumptions on the population share of people 65 years of age and older by country group. Although the division of East Asian and Pacific economies into three typologies is largely robust in the fertility scenarios, the variation between scenarios *within* the red and orange economies is nearly as large as the variation across the two groups, showing the significant uncertainty about projections further into the future.

The UN extrapolations of fertility rates are particularly controversial in the East Asian context. The lack of parallelism in the projected recovery of East Asian TFR, as occurred in Europe, is debated for the following reasons. First, the impact of relaxing China's one-child policy is not known. Evidence shows that fertility norms have shifted to the extent that desired fertility is below replacement level, the one-child policy notwithstanding (Gu and Cai 2009). The second reason for doubt is the nature of gender relations in the East Asian context, in which traditional family values exert pressure on women for childbearing and child rearing and

**FIGURE 1.7 People in aging East Asian and Pacific countries see aging as a major challenge for their countries**

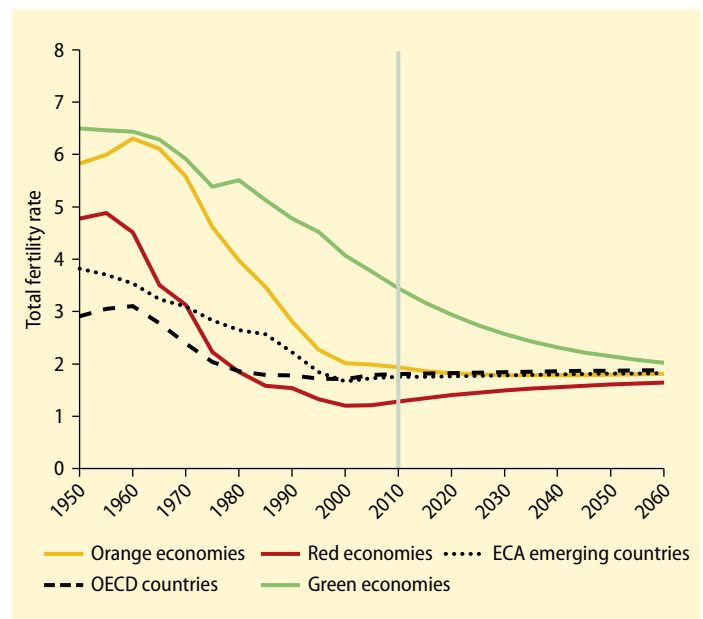
*Percentage of people by country who rate aging as a “major problem” for their country, selected countries*



Source: Pew Research Center 2014, based on the 2013 Pew Research Center Global Attitudes Project survey.

**FIGURE 1.8 Fertility rates have declined significantly across all East Asian and Pacific economies but are projected to flatten in orange and red economies**

*Total fertility rates, 1950–2060*



Source: World Bank estimates based on data from UN 2013.

Note: ECA = Eastern Europe and Central Asia; OECD = Organisation for Economic Co-operation and Development.

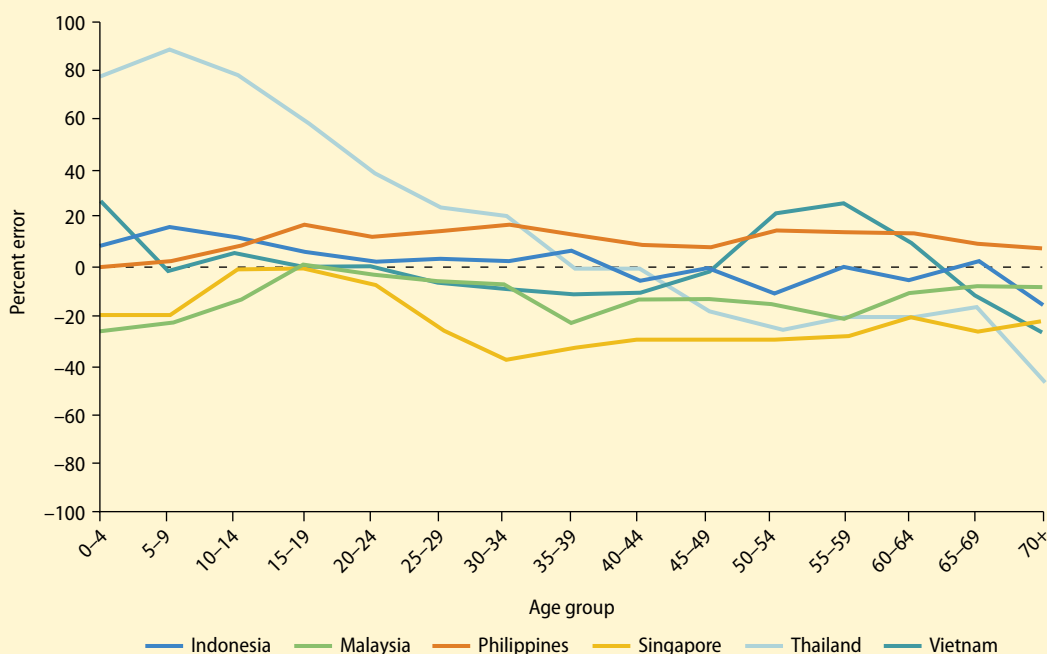
### BOX 1.1 Uncertainty and assumptions in United Nations population data

The population data used in this chapter, which are drawn from the 2012 revision of the United Nations (UN) World Population Prospects, involve important uncertainties and assumptions that affect long-term projections (UN 2013). First, historical fertility and life expectancy rates are estimated with significant error rates, introducing imprecision into current population figures. This uncertainty means that even past fertility, mortality, and population data should be used with caution. Especially for developing countries, the UN draws from a variety of sources to develop its estimates. Second, UN projections require nontrivial assumptions about fertility, mortality, and international migration. In response, the UN provides five different scenarios for evolu-

tion of fertility rates, which range from low to high fertility. It makes additional assumptions in a sixth scenario that projects population with constant mortality rates, and in a seventh scenario that projects population with no migration. An eighth scenario projects population holding fertility and mortality constant. Although the UN invests significant effort in providing the best projections possible, the complexity of the endeavor results in projections that can be considerably inaccurate. This can be seen for selected East Asian and Pacific countries in figure B1.1.1, which compares 1978 projections with 2000 outcomes, highlighting both the significant average margins of error and the variability of the errors across the age distribution.

**FIGURE B1.1.1** UN population projections for East Asia and Pacific have been subject to significant uncertainty

*Comparison of 1978 projections with 2000 outcomes*



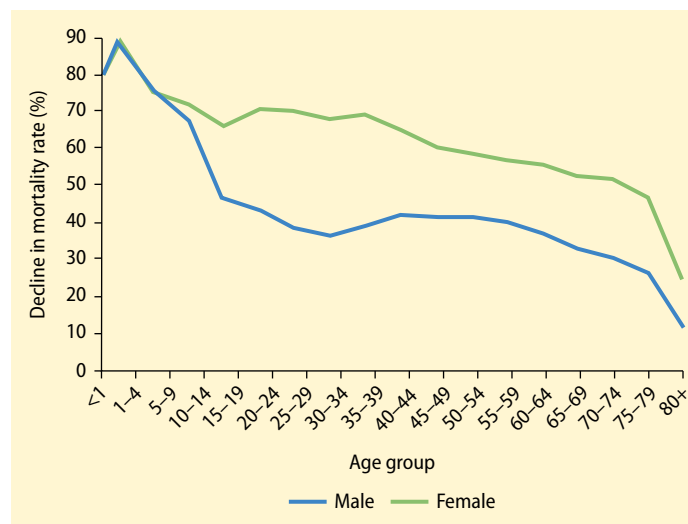
Source: UN 2013.

often care of the elderly (Jones 2011). The third reason is the UN's practice of projecting fertility, which is strongly influenced by the small increases in total fertility observed in recent years. Some research has suggested that the recent increases were driven by important but short-lived effects of auspicious animal years (for example, the Golden Pig year in 2007) and by catch-up from later initiation of childbearing. These are likely to be short-lived phenomena compared with the European upturn, which arises from a desire for increased *lifetime* fertility (Choe and Retherford 2009; Jones 2011).

The demographic trends in East Asian and Pacific economies result in divergent future trends in working-age populations, with a number of economies projected to experience sharp declines in their labor forces in coming years. Figure 1.11 shows the change in shares and the total size of the working-age population between 2010 and 2040. As expected, several economies

**FIGURE 1.9 Declines in age-specific mortality rates in East Asia and Pacific in recent decades have been substantial, particularly in the early years of life and for women**

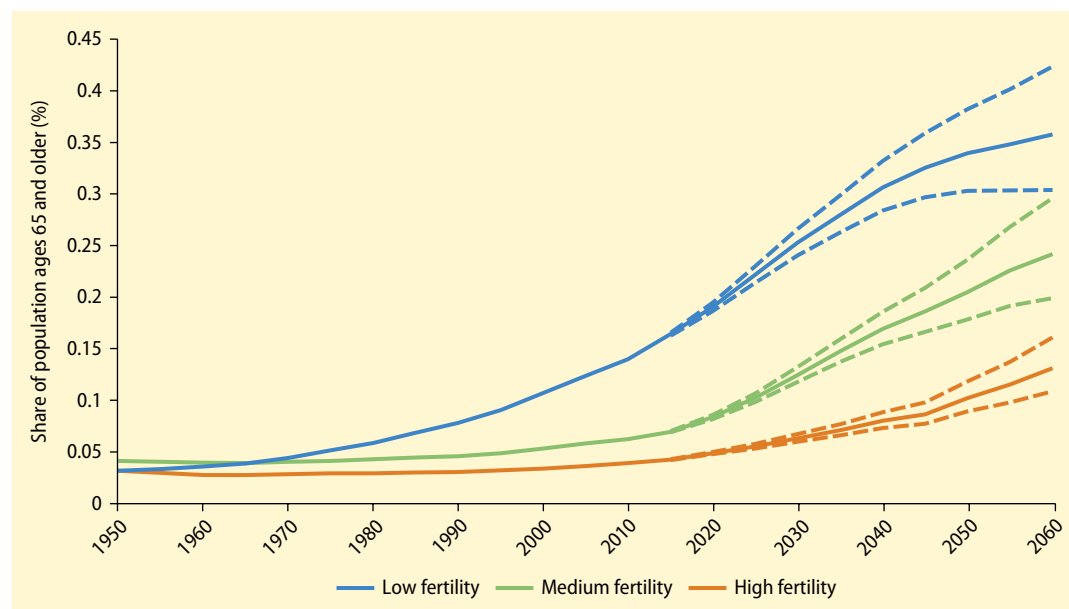
*Percentage of decline in age-specific mortality rates in East Asia and Pacific by gender, 1970–2010*



Source: IHME and World Bank 2013.

**FIGURE 1.10 The typology of East Asian and Pacific economies is robust in scenarios with low-, medium-, and high-fertility assumptions**

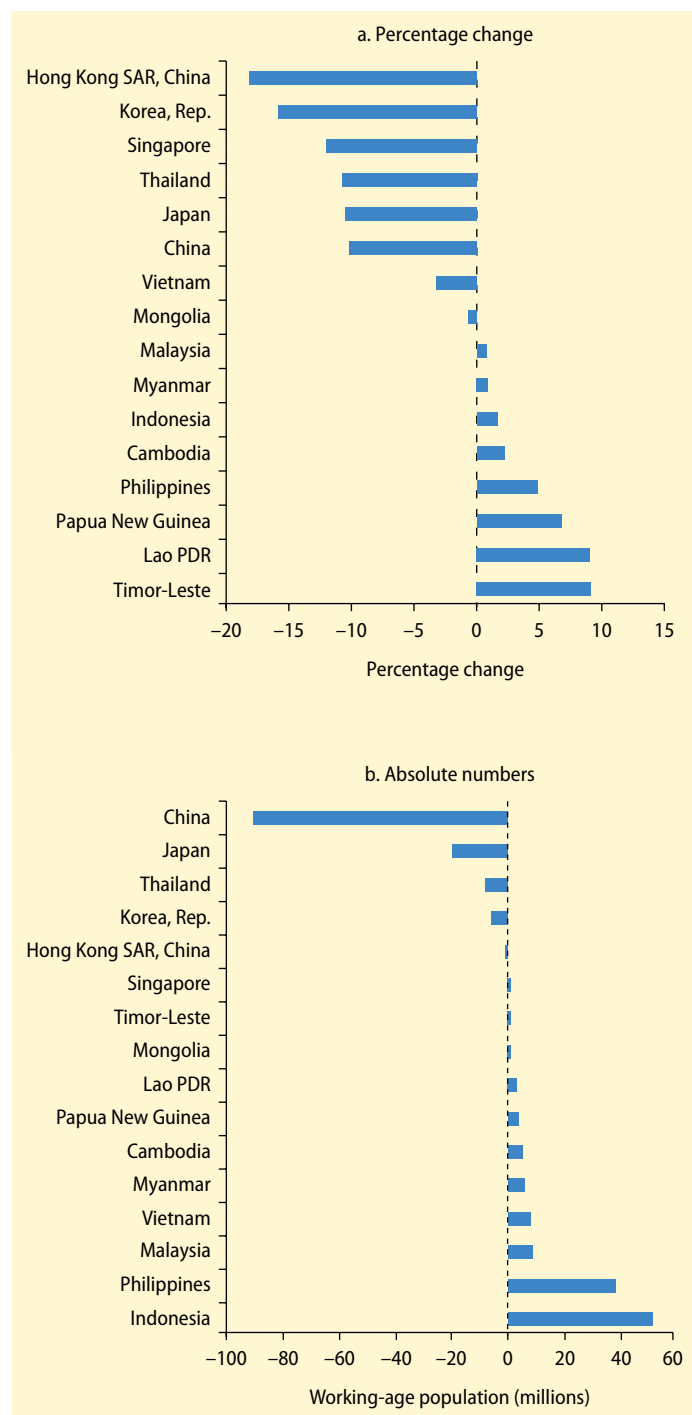
*Effect of different total fertility rate assumptions on share of people 65 years of age and older by country group*



Source: World Bank estimates based on data from UN 2013.

**FIGURE 1.11 The working-age population will shrink over coming decades in richer East Asian and Pacific economies**

*Percentage change and change in absolute terms in population, ages 15–64, in selected economies, 2010–40*

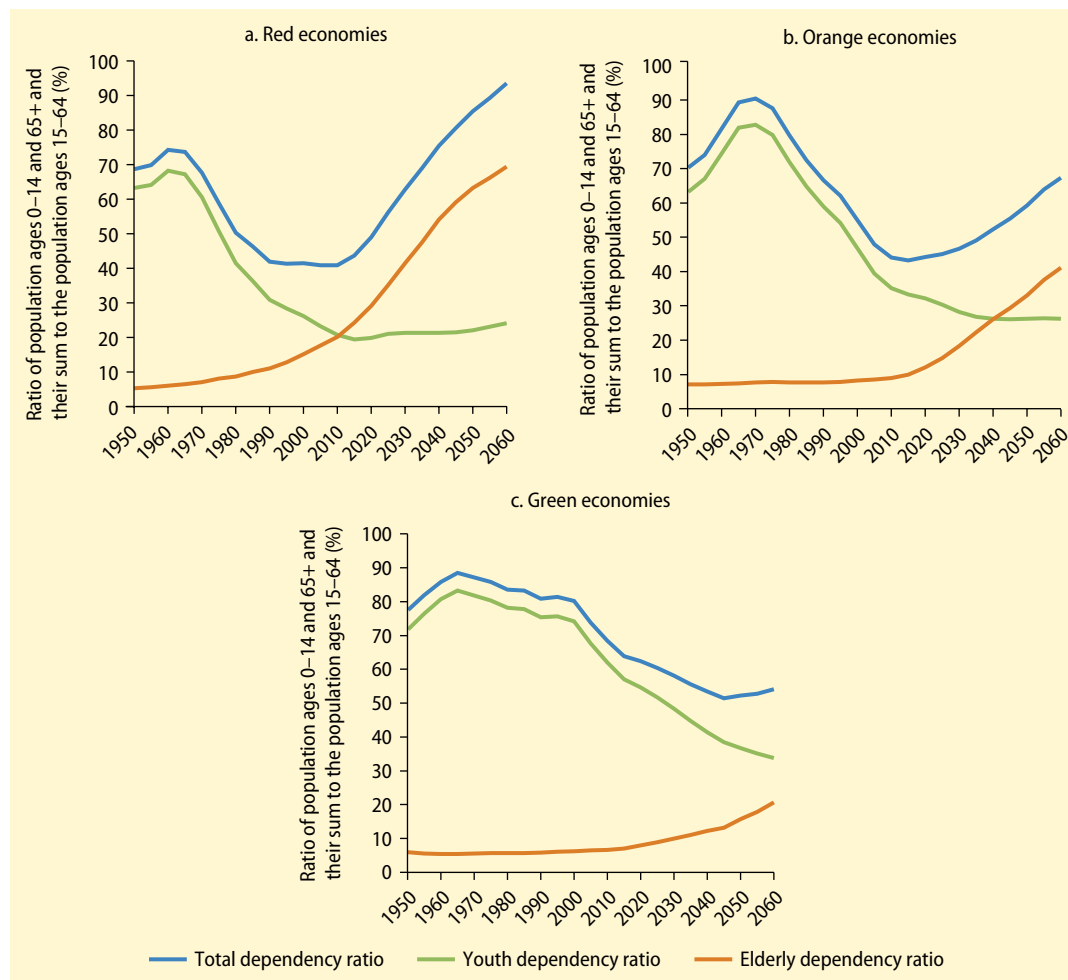


Source: World Bank estimates based on data from UN 2013.

will experience substantial declines in their shares of working-age population: over 15 percent in Korea and 10 percent or above in China, Japan, and Thailand. Whereas in relative terms China fares somewhat better than richer East Asian and Pacific economies, in absolute terms China dwarfs all other economies, with an expected reduction of 90 million people of working age between 2010 and 2040. In contrast, in lower-income green economies and some orange economies with younger populations, the share of the working-age population is not expected to shrink until after 2040. In absolute terms, Indonesia and the Philippines will account for a large share of the regional increase, but in relative terms, Timor-Leste, Lao PDR, Papua New Guinea, and the Philippines will lead the way.

The three groups of East Asian and Pacific economies also exhibit distinct patterns of dependency ratios. As shown in figure 1.12, changes in total dependency ratios (TDRs) will be driven largely by rising elderly dependency ratios in rich and middle-income economies of the region, and both rising elderly and falling youth dependency ratios will drive changes in younger and poorer East Asian and Pacific economies. In the youngest economies, TDRs have been declining and are projected to continue to decline until 2045. TDR in the oldest red economies, in contrast, started increasing sharply from 2010 and will reach 94 dependents for every 100 working-age individuals by 2060. TDR has also begun a steep increase in orange economies and will reach 67 dependents for every 100 working-age individuals by 2060. The rates of change in TDRs in East Asia and Pacific are much steeper than those experienced by OECD and emerging Eastern European and Central Asian economies.

The classic measures of dependency in terms of the rigid definition of *working age* have important limitations. In short, standard dependency ratios conflate age with dependency, both for those 65 years of age and above and for those under age 15. Economically, use of this measure

**FIGURE 1.12 Total dependency ratios conceal contrasting trends in youth and elderly population shares***Elderly, youth, and total dependency ratios in three groups of East Asian and Pacific economies, 1950–2060*

Source: World Bank estimates based on data from UN 2013.

Note: The elderly dependency ratio (EDR) is calculated as the population 65 years and older to the population ages 15–64. The youth dependency ratio (YDR) is calculated as the population ages 0–14 to the population ages 15–64. The total dependency ratio (TDR) equals EDR plus YDR.

is justified for the young who are truly dependent, in most cases—though whether 15 years of age remains an appropriate threshold in societies where the majority of young people complete secondary school and many go on to postsecondary studies is a question. However, for individuals 65 years of age and older, it presents a problem, given the variation in actual dependency as a result of differential patterns of

work, savings and assets, and other factors. Some alternative definitions of dependency are discussed in box 1.2.

### The epidemiological transition in East Asia and Pacific

Together with the demographic transition, East Asia and Pacific is experiencing a rapid epidemiological transition, driven in part by



## BOX 1.2 Alternative measures of dependency

Many attempts have been made to rethink dependency ratios to make them more relevant to policy making (Sanderson and Scherbov 2005, 2007, 2013; Spijker and MacInnes 2013). In a recent example, Spijker and MacInnes (2013) propose using 15 years or less of remaining life expectancy as a proxy for dependency, arguing that remaining life expectancy is closely linked to health and active behaviors in addition to being an important “second” component of age. The authors also propose the employed population as a more accurate indicator of who works than the more traditional definition of working-age population as 15 to 64 years of age. The results of applying this alternative old-age dependency ratio to the United Kingdom and several member countries of the Organisation for Economic Co-operation and Development are striking. The traditional old-age dependency ratio results in far fewer working-age individuals for every person 65 years of age and older and implies that this trend will continue. The Spijker and MacInnes measure, in contrast, finds that dependency fell in the past, will continue to fall in the near future, and will rise only gradually in the long term. As the authors put it, “over the past four decades the population, far from aging, has in fact been getting younger” (Spijker and MacInnes 2013, 21).

However, the bright picture of aging presented in Spijker and MacInnes has its own issues. Although their alternative dependency ratio incorporates changes in education, female labor force participation, and early retirement, it still relies on an arbitrary cutoff for dependency, setting 15 years of

remaining life expectancy as the threshold. Empirical evidence linking this particular 15-year threshold to dependency is limited. Another alternative dependency ratio makes additional progress in overcoming the arbitrary dependency cutoff. This measure uses the life-cycle pattern of consumption described in National Transfer Accounts to directly compute the ratio of people weighted by age-specific earnings and age-specific labor force participation rates to people weighted by age-specific consumption (Prskawetz and Sambt 2014). The results are the opposite of those found in Spijker and MacInnes (2013): in the future, the Prskawetz and Sambt measure declines more (that is, implies more dependency) than the traditional economic support ratio on which it is based, which divides the working-age population by overall population and uses arbitrary age cutoffs.

The contrasting results of Spijker and MacInnes (2013) and Prskawetz and Sambt (2014) illustrate that measures of aging should be approached with an open mind. Nonetheless, both these alternatives are improvements on the traditional measure because they acknowledge that dependency ratios have policy implications: dependency is not only about demographic structure but also about behavior that policy can influence. These refined dependency ratios suggest potential policy remedies—such as incentives to increase labor force participation of older people, investments in health that are associated with lengthier working lives, and adjustments to pension eligibility age—when policy makers consider dependency ratios to be too high.

population aging but also by factors such as higher incomes and urbanization. Apart from aging itself, a vital element of understanding changing demographics is knowing whether people in the region are experiencing healthy aging and how the disease profile is changing. “Healthy aging” implies not only living longer but also spending those additional years of life in good, active health. Thus, examining healthy life expectancy is useful. This measure, which estimates the number of years that a person can expect to live in good

health, takes into account age-specific mortality, morbidity, and functional health status.<sup>7</sup> The main hypotheses regarding how healthy life expectancy evolves with the increase in life spans, and the empirical evidence to date, are summarized in box 1.3.

Health-adjusted life expectancy (HALE), or healthy life expectancy, increased in East Asia and Pacific between 1990 and 2010, although slightly less than total life expectancy (figure 1.13). Each year of increase in life expectancy at birth has been accompanied



### BOX 1.3 Is longevity accompanied by more good health or less?

In the past 100 to 150 years, medical technologies have been effective at saving lives from a range of fatal diseases. Often, however, this success has meant that the life years saved are spent in poor health and characterized by chronic illness and disability. As preventive health care throughout the course of life becomes more widespread, and as medical technologies improve in their ability to reduce mortality and morbidity, the additional years of life saved may be spent in good health. Better health goes along with fewer health care needs and may drive down use of health services and health expenditure (Rechel et al. 2009). Therefore, an important way to measure progress is to determine if longevity is accompanied by more good health or less.

Three hypotheses have been put forward to predict possible future interaction between the evolution in life expectancy and changes in prevalence of disability and bad health. This demonstrates that predicting changes in health status and morbidity is problematic, not least because epidemiological data are subject to greater uncertainty. The three hypotheses are as follows:

- *The expansion of morbidity hypothesis* (Gruenberg 1977; Olshansky et al. 1991; Verbrugge 1984). Under this hypothesis, the decline in mortality is largely due to a reduction in disease fatality rather than a reduction in prevalence or incidence of those diseases. Consequently, falling mortality is accompanied by an increase in morbidity and disability.
- *The compression of morbidity hypothesis* (Fries 1980, 1989). Under this hypothesis, the incidence

and prevalence of chronic illnesses and morbidity are compressed toward the later period of life at a faster pace than reductions in mortality. People do not just live longer; they live longer in better health.

- *The dynamic equilibrium hypothesis* (Manton 1982). Under this hypothesis, the effects of compression and expansion of morbidity offset one another, with, on one hand, decreasing prevalence or incidence of chronic illness, and on the other hand, decreasing fatality rates of diseases, leading to longer prevalence of disability.

The empirical research is not clear on whether compression or expansion of morbidity occurs in countries that have already experienced rapid aging. For example, higher levels of some disabling conditions (dementia and musculoskeletal diseases) go along with falling rates of prevalence of other conditions (cardiovascular and chronic respiratory diseases). The growing consensus from Organisation for Economic Co-operation and Development countries is as follows: the prevalence of severe disability has been reduced substantially, the prevalence of mild to moderate disability has increased, and overall, health status has improved (Christensen et al. 2009).

Trends in disability may reflect underlying trends in other domains, such as the rising use of assistive technology, improved accessibility at home and in public spaces, and changes in social perceptions of disability. The decline in disability might also reflect improvements in living conditions, not only of those currently elderly, but also of their childhood living conditions (Christensen et al. 2009).

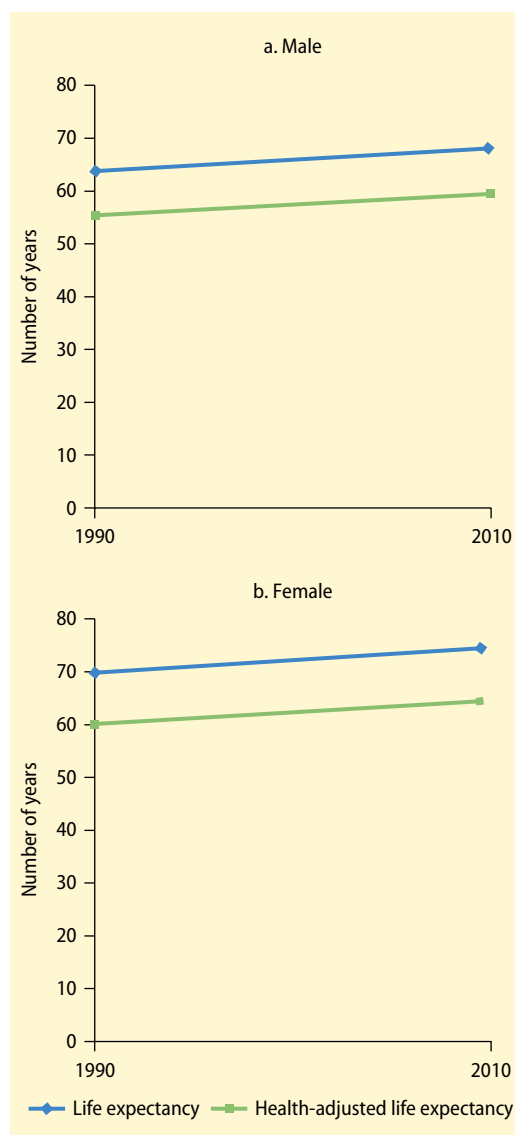
by an 11-month increase in healthy life expectancy at birth. The biggest improvements in healthy life expectancy in the region were in low-income countries, and the slowest improvements were in middle-income countries (IHME and World Bank 2013).

Large differentials exist across East Asian and Pacific countries in the number of years that people age 50 can expect to live in good health. Figure 1.14 compares healthy life expectancy with life expectancy in the

region at age 50 by country and gender and shows the gender gap. The difference between life expectancy and healthy life expectancy can be interpreted as the average number of years of healthy life lost to poor health. HALE at age 50 is also a useful indicator in thinking about appropriate retirement ages in pension systems, as discussed in chapter 5. A significant gap exists between total and healthy life expectancy in the region, with important implications

**FIGURE 1.13** Life expectancy and health-adjusted life expectancy in East Asia and Pacific both increased between 1990 and 2010

*Years of life expectancy and health-adjusted life expectancy, by gender*



Source: IHME and World Bank 2013.

for health delivery systems. Years spent in good health are considerably lower in Mongolia, Papua New Guinea, and some Pacific Islands compared with not only high-income countries such as Australia and Japan but also middle-income countries

such as Indonesia and China. At the age of 50, men and women in Japan can expect to live free of disability approximately 10 years more than their counterparts in Papua New Guinea. The gender gap also is significant in all East Asian and Pacific countries, with women spending more years free of disability than men. The policy and implementation implications of those systems are discussed in chapter 6.

The leading causes of mortality and disability in East Asia and Pacific have shifted significantly toward NCDs over the past two decades, in part because people are living to much older ages. NCDs generally increase in prevalence with age. The epidemiological transition is characterized by a decline in premature mortality and morbidity from communicable, maternal, and child health causes and an increase in deaths attributable to NCDs and injuries. NCDs include cardiovascular disease, diabetes, and cancer, which are chronic conditions that require primary and secondary prevention and pharmacological management over several years (see chapter 6 for a discussion on health systems implications of aging and NCDs). The region as a whole has transitioned epidemiologically over the past 20 years, with China and Vietnam leading the way. The NCD burden has grown rapidly, with initial onset increasingly happening in middle age. Cardiovascular disease, cancers, and diabetes accounted for the bulk of all disability-adjusted life years (DALYs<sup>8</sup>) among those ages 60 years and above in East Asia and Pacific in 2010 (figure 1.15). In high-income countries such as Australia, Japan, and Korea, cancers have taken over as the leading cause of DALYs, particularly for men. Cancers are the second major cause of disease burden among those ages 60 years and above in China and Mongolia and are among the top five causes of disease burden in most other countries (WHO 2014). Nevertheless, in many low-income countries in the region, such as Cambodia, Lao PDR, Myanmar, Papua New Guinea, and

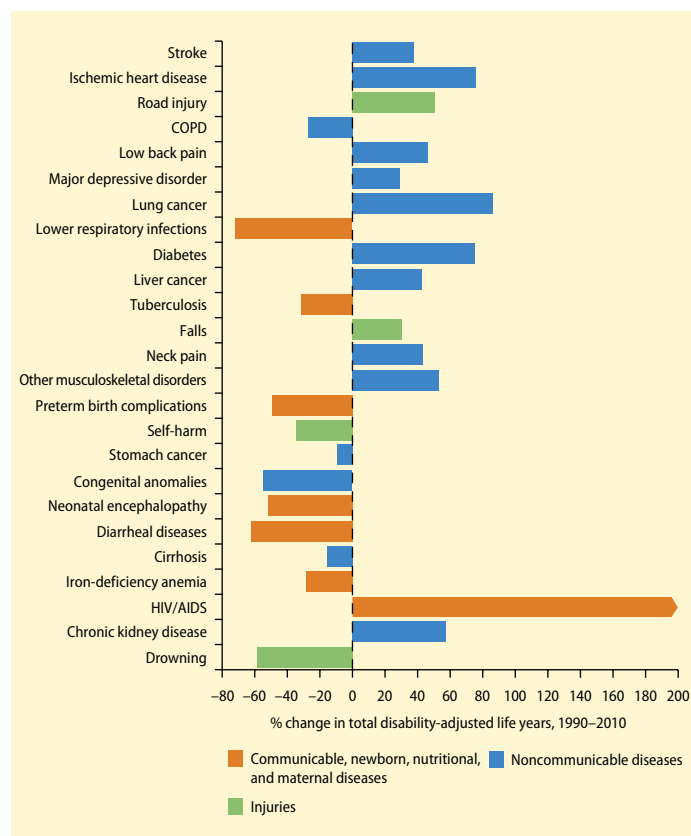
**FIGURE 1.14 Large differentials in healthy years of life are evident across the region, but men generally live shorter, less healthy lives than women**  
*Additional years of life and healthy life expectancy at age 50, by gender, and gender gap*



Source: IHME and World Bank 2013.

**FIGURE 1.15** NCDs have increased sharply as leading causes of disease burden in East Asia and Pacific in recent decades

Percentage change in total DALYs from 1990 to 2010 for East Asia and Pacific by condition



Source: IHME and World Bank 2013.

Note: COPD = chronic obstructive pulmonary disease; DALYs = disability-adjusted life years; NCDs = noncommunicable diseases.

Timor-Leste, communicable diseases still account for a significant share of premature mortality and morbidity, resulting in a double burden of disease.

Sensory organ diseases (for example, cataracts) and musculoskeletal disorders (for example, osteoarthritis) also feature prominently among major causes of disease burden in the region, especially in higher-income countries with a greater proportion of older people. The demographic shift toward older age groups and projected increases in longevity will inevitably lead to an increase in disability caused by sensory organ diseases, such as cataracts and

hearing loss (WHO 2014). Musculoskeletal conditions, which include lower back pain and neck pain, are major sources of disability both globally and in East Asia and Pacific for those ages 45 years and above.

The regional pattern of increased prevalence of NCDs is mirrored in individual countries. Figure 1.16 shows the changes in the leading causes of death in China from 1990 to 2010 as an example of how NCDs have increased as causes of mortality. Only one communicable disease remains among the leading causes of death in China, with 83 percent of total mortality attributable to NCDs and injuries (Bloom et al. 2014; IHME and World Bank 2013).

As people age and develop chronic illnesses, they are increasingly likely to have several comorbid conditions, as is observed in East Asia and Pacific. Comorbidities can interact with each other and complicate treatment. Among the elderly in Korea, for example, over half of all women and one-third of men had three or more chronic conditions (figure 1.17). Similarly, findings from a 2008 Australian study reveal the extent of the problem among the elderly: over half of elderly patients with arthritis also had hypertension, 20 percent had cardiovascular disease, 14 percent had diabetes, and 12 percent had mental health problems. Of those with cardiovascular disease, 60 percent also had arthritis, 20 percent had diabetes, and 10 percent had asthma or mental health problems (Caughey et al. 2008).

The burden of disease caused by chronic conditions is also characterized by large inequalities based on social determinants such as poverty and lack of education. In China, for instance, men and women from the poorest quintiles of the population were three to four times more likely to have a chronic illness in 2006 than those in the top three quintiles (figure 1.18) (World Bank 2012). These inequalities persist even in high-income countries that have made significant progress in reducing the burden of cardiovascular disease. For instance, in Australia (Brown 2013) and New Zealand

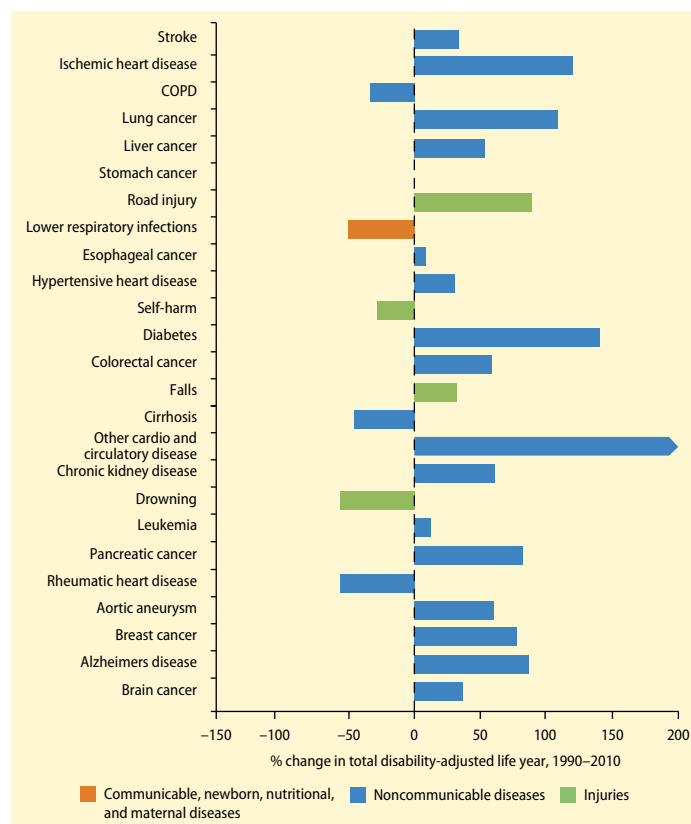
(Wang et al. 2014), people from ethnic minorities are at significantly higher risk of experiencing cardiovascular disease than the rest of the population.

The burden of NCDs across East Asia and Pacific reflects growing exposure to risk factors, which are quite pronounced compared with the rest of the world (figure 1.19). These risk factors include the very high prevalence of smoking (see box 1.4) and the rapid rise in predisposing conditions such as hypertension, obesity, and diabetes. A review of 33 cohort studies in the region found continuous positive associations between baseline body mass index (BMI)<sup>9</sup> and the risks of ischemic stroke, hemorrhagic stroke, and ischemic heart disease as well as diabetes in several countries in the region (Asia-Pacific Cohort Studies Collaboration 2004, 2006).<sup>10</sup> Between 1990 and 2010, premature death and disability attributable to NCD-related risk factors—such as dietary risks (for example, high sodium intake), high blood pressure, high levels of total cholesterol and fasting plasma glucose (blood sugar), and high BMI—increased worldwide but was quite pronounced in East Asia and Pacific (figure 1.19). For instance, DALYs attributable to high BMI increased 82 percent globally but rose 198 percent in East Asia and Pacific (IHME and World Bank 2013). The Pacific Islands alone have some of the highest rates of obesity and overweight incidence in the world. In four countries of the Pacific,<sup>11</sup> at least half of adults are obese, and over 40 percent of students ages 13–15 are overweight (Anderson 2013).

Stark contrasts exist between and within countries. In upper-middle-income countries such as Malaysia and Thailand, the NCD-related risk factors were the dominant causes of DALYs, whereas in low-income and lower-middle-income countries, iron deficiency and childhood undernutrition were dominant causes. Country-level evidence, although somewhat limited, points to significant socioeconomic gradients in exposure to and treatment of NCD-related risks (boxes 1.5 and 1.6).

**FIGURE 1.16 NCDs and injuries dominate the leading causes of mortality in China**

*Percentage change in total disability-adjusted life years (DALYs) by cause, 1990–2010*

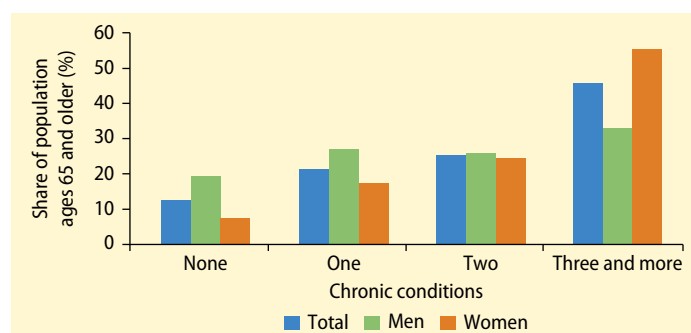


Source: IHME and World Bank 2013.

Note: COPD = chronic obstructive pulmonary disease; NCDs = noncommunicable diseases.

**FIGURE 1.17 In the Republic of Korea both men and women 65 years of age and older are more likely to have multiple chronic conditions**

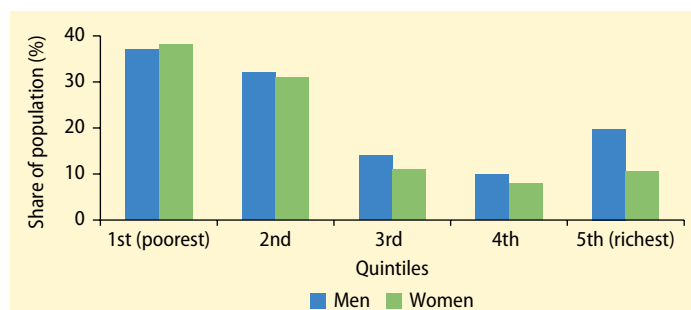
*Percentage of people ages 65 and older by number of chronic conditions and gender*



Source: Sunwoo 2013.

**FIGURE 1.18** In China, in 2006, socioeconomic status had an inverse relationship with noncommunicable diseases

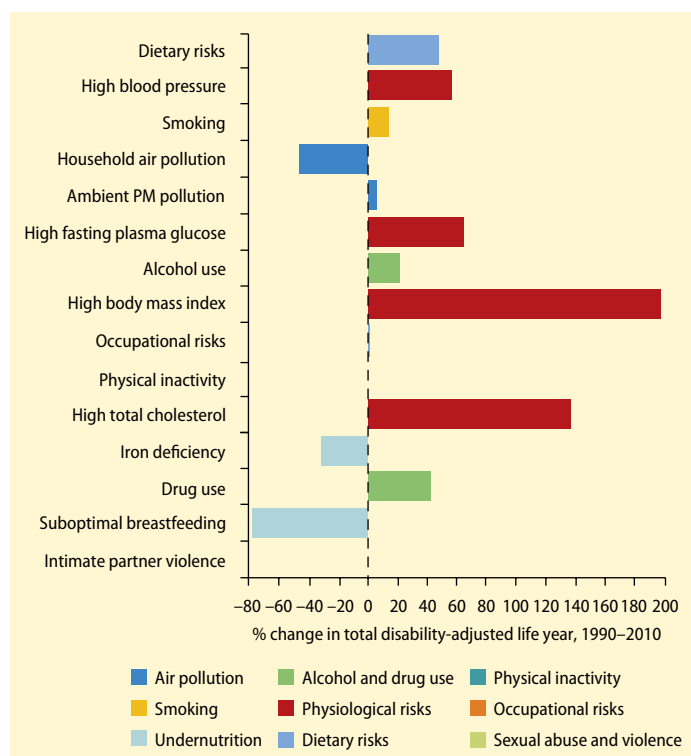
*Proportion of population with a chronic illness, by gender and income quintile*



Source: World Bank 2012.

**FIGURE 1.19** NCD-related risk factors grew in East Asia and Pacific between 1990 and 2010

*Percentage change in total DALYs, 1990–2010*



Source: IHME and World Bank 2013.

Note: DALY = disability-adjusted life year; NCDs = noncommunicable diseases; PM = particulate matter.

Adverse initial conditions in life, including low birthweight, have a significant impact on mortality and morbidity later in life, a finding that has significant implications for East Asia and Pacific. First, current and future elderly cohorts in low- and middle-income countries in the region are likely to have experienced more economic distress and disadvantage as children than their counterparts in the developed world. During the 1950s to 1970s, East Asian and Pacific countries experienced low economic growth and, in some cases, war (Cambodia and Vietnam) or extreme social and economic distress of other forms. The evidence on the early origins of adult disease summarized in box 1.7 suggest that current and future elderly cohorts in the region are likely to be especially vulnerable to cardiovascular diseases and cancers as a result of the adverse circumstances they faced in childhood. Second, low birthweight and childhood undernutrition, a critical factor in the early origins of adult disease, continues to be a major cause of premature death and disability in low-income countries such as Cambodia, Lao PDR, and Timor-Leste (IHME and World Bank 2013). Therefore, adverse initial conditions will continue to put future elderly populations at risk for debilitating NCDs even in the relatively young countries of the region.

Unless these risks are addressed urgently, the population cohorts that will survive the next two decades and become the majority of the elderly in the 2030s will be more vulnerable to poor health and morbidity than today's elderly. Addressing these risks, in particular identifying and managing risks through prevention and treatment, is therefore vital for healthy aging in these populations. Some risks, such as hypertension and hypercholesterolemia, are silent killers that can go undiagnosed for a long time.

## Conclusion

The demographic and epidemiological trends in East Asia and Pacific point to the

### BOX 1.4 Very high prevalence of smoking and related death rates in the region

East Asia and Pacific has the highest prevalence of smoking in the world, and smoking is among the top three risk factors in both lower- and middle-income countries. Two-thirds of the world's tobacco users live in 15 countries (WHO 2011b), and 5 of these countries with high-risk burdens are in Asia: China, India, the Philippines, Thailand, and Vietnam. China alone is the world's largest producer and consumer of tobacco: prevalence of tobacco

smoking among men ages 15–69, at 54 percent, is among the highest in the world. However, the number of daily cigarettes consumed per smoker in Asian countries is low compared with that in developed countries (WHO 2011a). Despite the lower rates of consumption, smoking death rates per smoker appear to be as extreme as those seen in the high-income countries, where smoking has been prevalent for decades.

### BOX 1.5 Indonesia: Increasing and often unequal exposure to risks

- *High body mass index (BMI) has increased.* In 2007, around 31 percent of elderly women had a BMI of 25 or over, more than double the percentage in 1993. Among elderly men in 2007, 17 percent were overweight, compared with over 8 percent in 1993.
- *BMI increases with both education and income.* Completing primary school (for women) and junior high school (for men) was positively associated with increased BMI, as was per capita income.
- *Waist circumference has also increased, leading to higher cardiovascular risks.* For women more than men, mean waist circumference has increased while BMI has remained constant.
- *Cholesterol levels are not correlated with education or income.* Socioeconomic status has little correlation with the probability of having either high total cholesterol or low HDL.
- *Levels of hypertension are substantial but have not changed over time.* Among men ages 45 and older, around 44 percent had hypertension in 2007, the same percentage as in 1997. Similarly among women, 53 percent were hypertensive, and the number did not change much over the years. These are considered high prevalence rates at the population level. Overall, a strong positive relationship exists between age and being hypertensive.
- *Education and income are associated with a higher probability of the hypertension being diagnosed and of adherence to treatment.* Probability of underdiagnosis is larger for lower-income and uneducated individuals, particularly women.

importance of better understanding the household and individual behavior and preferences of the region's older populations to inform policy choices. The "big picture" trends presented in this chapter point to the need for reforming policies in a number of areas that

already have proved technically and politically challenging, both in global contexts and in richer economies in the region. The following chapter moves from the big picture and aims to provide insights into these policy reforms.



### BOX 1.6 Malaysia: Undiagnosed noncommunicable disease risks and modest social economic status differentials in management of risk

- *Diabetes is largely undiagnosed or is not controlled.* Only 47 percent of diabetics in Malaysia are currently diagnosed. Of the 7 percent who reported being diagnosed as diabetic, only 41 percent (that is, 3 percent of the population) had controlled blood glucose levels.
- *Little variation by social economic status is evident in diabetes prevalence and treatment.* Overall patterns of actual diabetes prevalence and the likelihood of being diagnosed do not vary by income quintile.
- *Hypercholesterolemia (high cholesterol in the blood stream) remains largely undiagnosed.* Prevalence among adults in 2011 was 35 percent, with the rate higher among females (40 percent) than males (30 percent). Only 8 percent had been advised by medical personnel about having the condition.
- *Large variation by socioeconomic status is evident in prevalence of hypercholesterolemia among men.* Prevalence is higher among better-off men, but no socioeconomic status gradient exists for women.
- *Significant socioeconomic status disparities can be seen in the rates of diagnosis and treatment of hypercholesterolemia.* A person in the richest quintile is 2.2 times more likely than a person in the poorest quintile to have been diagnosed and 2.1 times more likely to be successfully treated.
- *Hypertension remains largely undiagnosed.* Over 32 percent of the population was found to have hypertension, compared with the self-reported rate of 13 percent.
- *Modest socioeconomic status disparities can be seen in the rates of diagnosis and treatment of hypertension.* A person in the richest quintile is 1.2 times more likely than a person in the poorest quintile to have been diagnosed, and 1.5 times more likely to be successfully treated.

### BOX 1.7 Adverse childhood socioeconomic conditions and increased mortality risks later in life

#### The links in the chain

*The fetal origins hypothesis of adult diseases.* Fetal undernutrition, as reflected by low birthweight, is associated with susceptibility to development of ischemic heart disease and other chronic noncommunicable diseases in later life (Barker 1990, 1995; Barker and Osmond 1986). Exposure to adverse nutritional conditions during pregnancy results in alterations in the development of vital organs, tissues, or other human systems. These alterations, though advantageous for short-term survival, may be detrimental in the long term and may increase the predisposition to chronic diseases during adulthood. The mechanism is mainly biological.

*The chain of risk model.* Exposure to an adverse environment in early life may set individuals on unfavorable life trajectories. For instance, individuals born in poor families may be more likely to be ill and may also go to school less often than others. This pattern may affect future educational attainments, labor market skills, later earnings, and adult health (Almond and Currie 2011; Yeung et al. 2014).

#### The evidence

- Analysis of a sample of 14,520 Dutch individuals found that exposure to recessions in early life significantly increases cancer mortality risks of older individuals (both male and female). The residual life expectancies are about 8 percent and 6 percent lower for male and female cancer mortality, respectively, and about 5 percent lower for female cardiovascular mortality (Yeung et al. 2014).
- Early malnutrition in Latin America is highly correlated with self-reported diabetes (WHO 2012).
- A Swedish study (Finch et al. 2004) with excellent historical data concluded that reduced early exposure to infectious diseases was related to increases in life expectancy.
- Adverse childhood socioeconomic status conditions are positively correlated with increased mortality risks in later life, such as stomach cancer, hemorrhagic stroke, coronary heart disease, and chronic obstructive pulmonary disease (Galobardes et al. 2008).



## Notes

1. *Healthy life expectancy* (also known as HALE, or health-adjusted life expectancy) is defined as the average number of years that a person can expect to live in full health, excluding the years lived in less than full health because of disease or injury.
2. The 7 and 14 percent thresholds are based on the United Nations definition of what constitutes an *aging society* and an *aged society*, respectively.
3. The five economies are Hong Kong SAR, China (37 percent elderly); Japan (37 percent); Korea (37 percent); Singapore (32 percent); and Thailand (33 percent).
4. Country groupings do not include a number of Pacific Island states.
5. In contrast, a simulation by the Korean National Assembly Research Service in 2014 projected that the population would decline from around 50 million currently to 5 million in 2172, to 100,000 in 2379, and to extinction by 2750 (Mundy 2014). Such projections highlight the risks of projecting current trends into the long-term future.
6. As explained in Bloom, Canning, and Finlay (2010), the decline in mortality rates across all ages is one explanation for their limited effect on population aging compared to the decline in fertility rates.
7. Internationally comparable measures of health status are less widely available than mortality statistics. Data on life expectancy and health-adjusted life expectancy were obtained from the Global Burden of Disease 2010 project. Years lived with disability were calculated from numerous sources. Data gaps in many countries, however, prompted the use of a modeling tool to estimate prevalence of disability, which flattens variability between countries.
8. The DALY is a summary measure of mortality and morbidity, calculated by adding years lived with disability and years of life lost to premature death. In most countries, cardiovascular disease is the leading cause of death and disability.
9. BMI is calculated from a person's weight and height. The index provides a reliable indicator of body fat for most people and is used to screen for weight categories that may lead to health problems. For adults over 20, a BMI of 25.0–29.9 implies that the adult is overweight, and a BMI of 30.0 implies that the adult is obese.

10. The paper reviewed 33 cohort studies, including 310,283 participants, who contributed 2,148,354 person-years of follow-up, during which 3,332 stroke events and 2,073 ischemic heart disease events were observed.
11. For example, obesity rates in the Cook Islands are 63 percent, in Nauru 71 percent, in Samoa 54 percent, and in Tonga 57 percent (Anderson 2013).

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# The Welfare and Labor Market Behavior of Older People in East Asia and Pacific

## 2

### Introduction

Across East Asia and Pacific and even within the region's countries, diverse patterns of well-being, labor market behavior, and sources of support among the elderly can be seen. Declining poverty rates among the elderly suggest that in most of the region's countries, the elderly have benefited from economic growth. However, nonincome indicators of their well-being such as physical limitations and depression indicate cause for concern even in richer East Asian and Pacific economies. Overall, labor income remains the dominant source of support for the elderly in the region (even where co-residence with children remains high), often well into old age and especially in rural areas, where retirement is often not an option for financial reasons. In contrast, the retirement behavior of urban formal sector workers is significantly influenced by pension receipt and raises concerns over premature withdrawal from work in rapidly aging countries. At the same time, rapid social and economic change is affecting traditional patterns of informal support from

and to older people in East Asia and Pacific and expectations regarding future roles of the state and families. All of these factors have important implications for policies on health care, labor, pensions, and other related areas.

To help inform policy making with a better understanding of the situation and behavior of older people in East Asia and Pacific, this chapter discusses key aspects of well-being, sources of support, and labor supply of the elderly. The first section in this chapter documents trends in poverty among the region's elderly, and the second section looks at other measures of well-being for the elderly such as functional limitations and mental health conditions. For an understanding of the importance of public and private mechanisms in support of older people, the third section describes living arrangements and access to support for them. The fourth section then discusses the sources of financial support for older people in the region and their relative importance in preventing incomes from falling below the poverty line, as well as patterns of labor force participation among older workers and their main drivers.

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This chapter is largely based on two background papers, John Giles, Yuqing Hu, and Yang Huang (2015) and John Giles and Yang Huang (2015), both of which contain fuller bibliographical references.

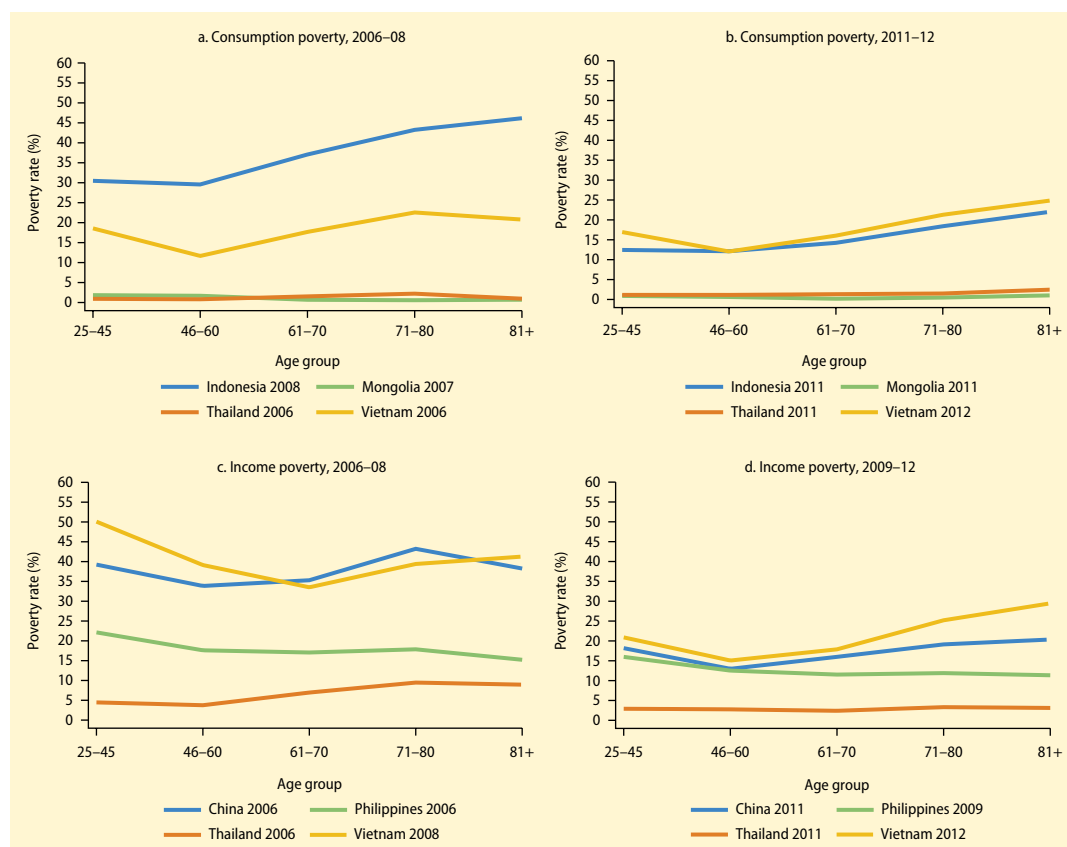
## Poverty among older people in East Asia and Pacific

Similar to the population as a whole, poverty rates of older people have declined across all East Asian and Pacific countries over the period from 2006 to 2012.<sup>1</sup> Poverty rates among the rural elderly have shown a steeper decline. Elderly poverty rates in Mongolia and Thailand are very low (2–3 percent). In Thailand, they are likely influenced by near universal access to a low social pension, whereas moderate poverty rates are evident for the elderly in China, Indonesia, and Vietnam.

At the same time, in general, poverty increases with time after age 45 and then declines somewhat at older ages in the region, a pattern likely driven by both mortality selection (poorer elderly die at younger ages) and movement of elderly over age 80 into homes with income-earning adult children. The patterns of national poverty rates across the adult life cycle can be seen in figure 2.1 and vary notably. The significant increase in poverty rates with age in China, Indonesia, and Vietnam contrasts with flat rates with age in Mongolia, the Philippines, and Thailand. The flattening of the income poverty line with age in Thailand between 2006 and 2011 is also

**FIGURE 2.1** Poverty rates increase with age in some East and Southeast Asian countries, but elderly poverty has fallen over time

*Percentage below poverty line by consumption and by income, by age, selected countries*



Sources: Giles and Huang 2015 based on data from CHNS 2006, 2011; ThaiSES 2011; World Bank East Asia and Pacific Standardized Household Surveys, various years; and VHLSS 2012.

Note: Poverty is based on per capita daily income less than US\$1.25 (2005 dollar purchasing power parity).

notable because it occurred during the period when the social pension was universalized. In addition, a comparison of the profiles across consumption (panels a and b) and income (panels c and d) shows that consumption-based poverty rates are generally smoother across the life cycle, as one would expect given the reliance on savings and assets.

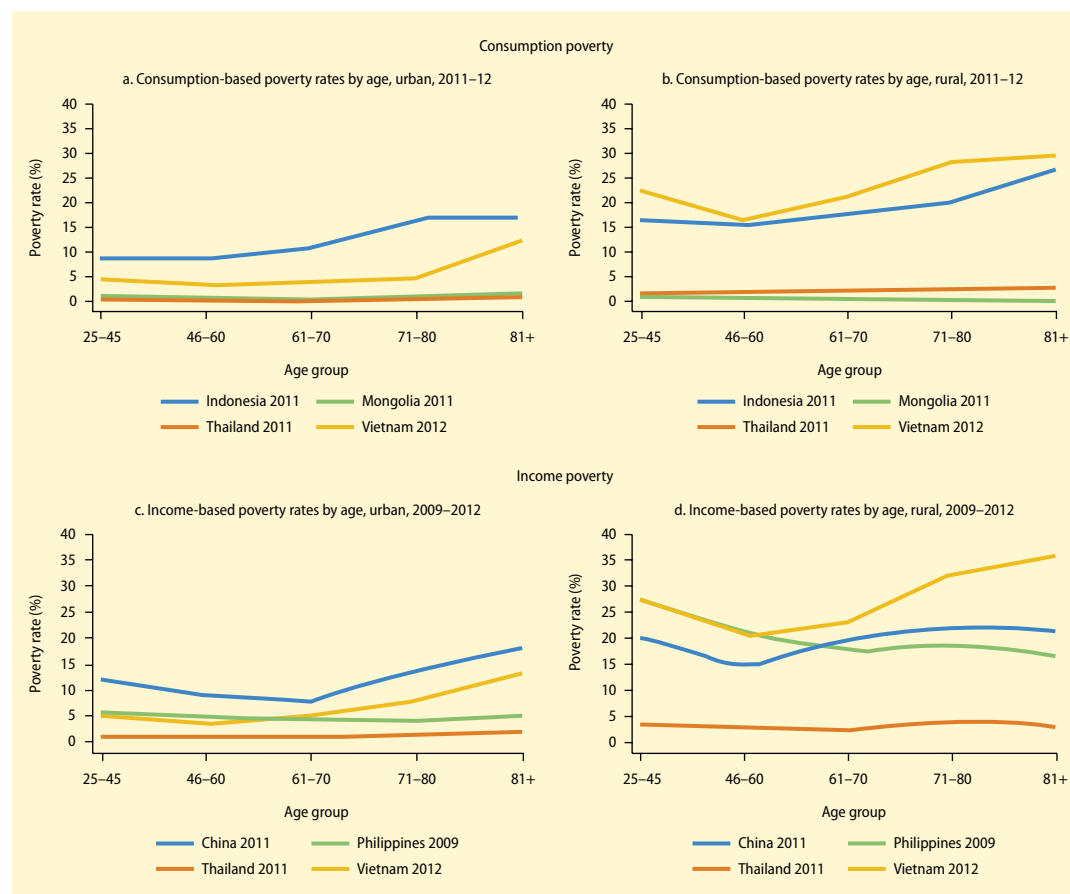
As one would expect, poverty among the rural elderly is higher than for urban elderly in nearly all cases (figure 2.2). Although higher rural poverty among the elderly mirrors the spatial pattern of the general population, the size of the difference in rural-urban elderly poverty rates across countries varies.

For Mongolia and Thailand, this difference is relatively small, whereas for China, Indonesia, the Philippines, and Vietnam with regard to consumption poverty, the rural-urban divide is much more pronounced. This variation deserves more exploration but may reflect factors such as the generally low level of poverty and much wider coverage of social pensions in Mongolia and Thailand, and perhaps factors such as relative differences in patterns of land and asset ownership across countries.

The correlates of old age poverty in East Asia and Pacific are not surprising but provide grounds for optimism regarding the future of poverty among older people. The correlates

**FIGURE 2.2 Poverty among the rural elderly remains significantly higher than for urban elderly**

*Percentage below poverty line by age and rural or urban location, selected countries*



Sources: Giles and Huang 2015 based on data from CHNS 2006, 2011; ThaiSES 2011; World Bank East Asia and Pacific Standardized Household Surveys, various years; and VHLSS 2012.

Note: Poverty is based on per capita daily income less than US\$1.25 (2005 dollar purchasing power parity).

of poverty for China, Indonesia, Thailand, and Vietnam are as follows:

- *Not surprisingly, older people with high school education or above are less likely to be poor.* Educated older people will have earned higher incomes over their lives than their less educated peers and will thus have higher savings and other sources of wealth to support consumption. Reflecting this, attainment of secondary education is associated with a 4.0 percentage point reduction in the probability that consumption falls below the poverty line in rural China, and 8.4 and 11.5 percentage point reductions in urban and rural Indonesia, respectively. Significant reductions in consumption poverty among the elderly are also associated with educational attainment in urban and rural Thailand and rural Vietnam. If one considers the higher educational attainment of current working-age adults, the relationship between own education and likelihood of falling into poverty suggests that the elderly are likely to be better off in the future. Although returns among older workers may decline with increases in the elder share with high school education or more, the more highly educated future elderly will likely be employed in less physically demanding jobs and are likely to adjust more readily to new work environments and tasks than will less educated workers.
- *Apart from own education, older people who have had more children and more educated children are less likely to be poor.* Declining family size with demographic transition may lead to fewer sources of financial support for the elderly, but increases in average education promise to more than offset the consequences of demographic change. Earlier work demonstrates this in urban China and suggests that declines in support as a result of the One Child Policy in China will not necessarily lead to financial impoverishment of the elderly (Cai, Giles, and Meng 2006). Family size has

also declined sharply in both Thailand and Vietnam, where increases in average educational attainment of adult children are associated with declines in the probability that both urban and rural residents will be income poor or consumption poor.

- *Pension receipt is associated with significant poverty reduction in both rural and urban areas.* Table 2.1 shows the reduction in income poverty rates when older people in a household are receiving pensions. Reductions in income poverty are greater in rural areas of all countries, where the probability of falling into poverty is greater and pension receipt is lower. As one might expect, the effect on poverty is lower in Thailand given that the large majority are receiving modest social pensions. Research conducted to identify a causal relationship finds that the New Rural Pension Program in China contributes to poverty reduction among rural residents over age 60 (Zhang, Giles, and Zhao 2014).
- *Unlike the general adult population, one should not expect a priori to observe positive or negative relationships between employment status and poverty for older people.* Older workers with few resources may be unable to retire, and continued work may be important for staying out of poverty. Alternatively, some elderly may continue to be poor even if they are actively farming. In urban China and Indonesia, increases in the number

**TABLE 2.1 Lower elderly poverty rates when older people receive pensions**

*Percent reduction in poverty rate among elderly receiving pensions by rural or urban location, selected countries*

Country	Urban	Rural
China	−10.5	−12.7
Indonesia	−8.8	−13.9
Thailand	−0.6	−1.2
Vietnam	−5.6	−22.1

Sources: Giles, Hu, and Huang 2015, based on data from CHARLS 2011, IFLS 2007, ThaiSES 2011, and VHLSS 2012.

Note: Results are significant at 1 percent level, except Thailand at 5 percent level.



of other household members working after age 60 are associated with a somewhat *higher* probability of consumption poverty. Conditional on employment, however, the probability of being poor *decreases* as the number of hours worked increases in both countries. Increases in employment of and hours worked by both younger (ages 16–59) and older (ages 60 and above) members of the household are associated with decreases in income poverty in urban and rural areas of China, Indonesia, and Thailand (Giles, Lei et al. 2015; Zhang, Giles, and Zhao 2014). This finding underscores a common observation that rural residents must often continue working until relatively late ages because they lack the resources sufficient to retire (see Pang, de Brauw, and Rozelle 2004).

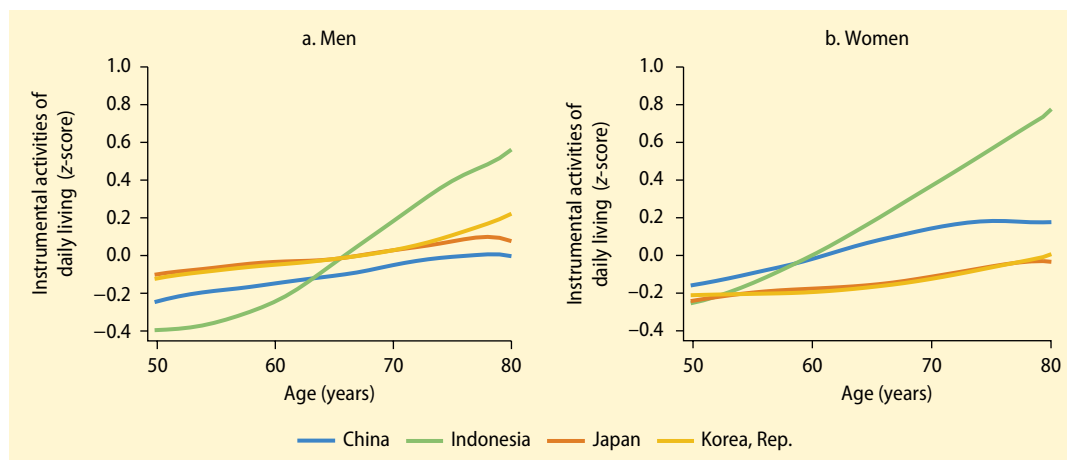
- *As one might expect, difficulties in physical functioning are associated with a higher probability of income poverty.* Interestingly, however, this finding does not carry over to consumption poverty. To examine the relationship between health status and likelihood of poverty, we include *z*-scores calculated from questions about activities of daily living (ADLs) that characterized

physical functioning abilities in China and Indonesia, where these variables are available. Although individuals with serious disability may in some cases not be able to earn income through work, this evidence suggests that public transfers and informal support, through financial and in-kind transfers, contribute to keeping some infirm elderly out of poverty.

### Other measures of well-being

Functional limitations not only increase with age, but also are greater among the poor and less educated elderly, as well as older women. Household surveys analyzed for this report, as well as other studies conducted in China, Thailand, and Vietnam, show that difficulties with ADLs and instrumental ADLs (IADLs) increase with age, including sharper increases among the older-old (ages 75 and above) who experience difficulties with multiple ADLs (figure 2.3) (Knodel, Prachuabmoh, and Chayovan 2013; Qin 2007; Van Minh, Byass, and Wall 2010).<sup>2</sup> In a range of East Asian and Pacific economies (such as China; Japan; Singapore; Taiwan, China; Thailand; and Vietnam), lower levels of income and education together with mountainous dwelling have been

**FIGURE 2.3** Difficulties with physical function and instrumental activities of daily living increase with age  
Instrumental activity of daily living *z*-scores among elderly, selected countries



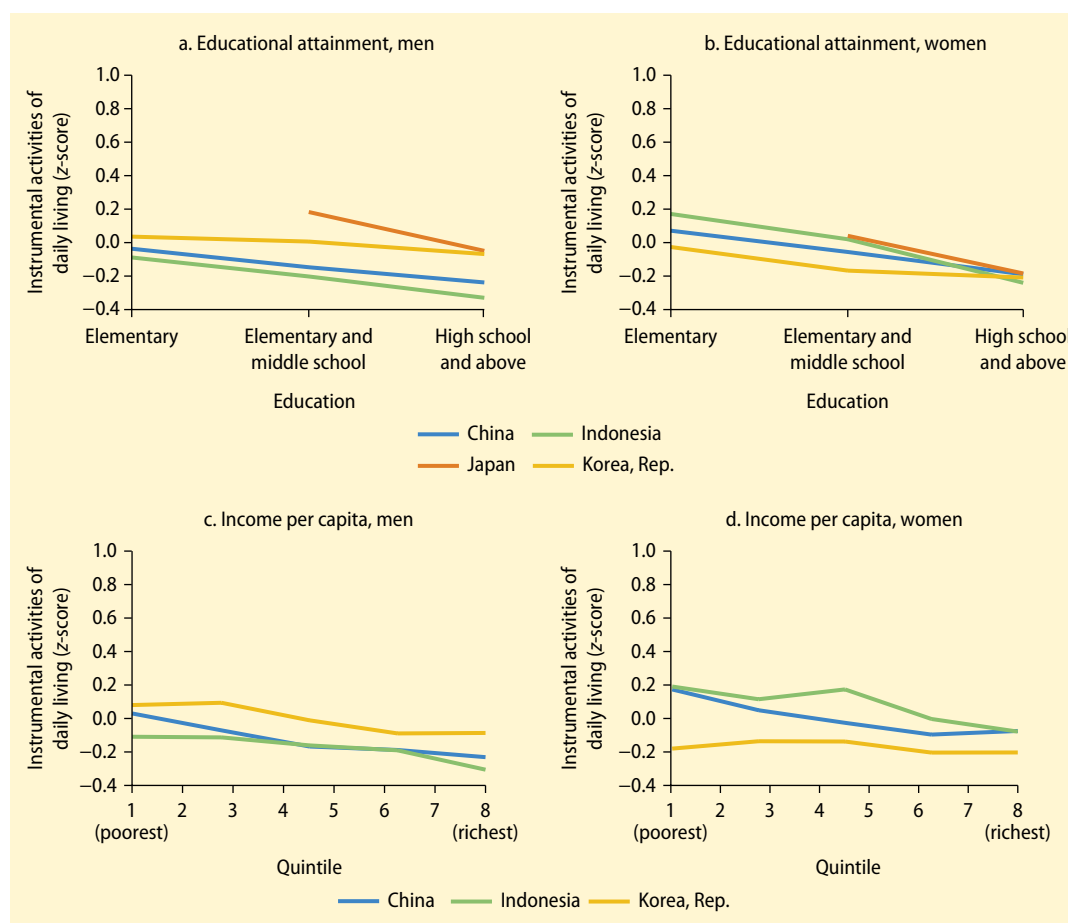
Sources: Giles, Hu, and Huang 2015 based on data from CHARLS 2011, IFLS 2007, JSTAR 2012, and KLoSA 2010.

found to be associated with higher incidence of functional limitations, and women consistently report greater functional limitations than men (Knodel, Prachuabmoh, and Chayovan 2013; Liang, Liu, and Gu 2001; Lim et al. 2007; Liu et al. 1995; Van Minh, Byass, and Wall 2010; Zimmer and Amornsirisomboon 2001; Zimmer et al. 1998). As shown in figure 2.4, the household data analyzed for this report confirm socioeconomic gradients with respect to functional limitations, including the decline in IADL limitations for those with higher incomes and higher educational attainment (with similar results for ADL not shown).<sup>3</sup>

As populations age, mental health conditions also increase, in East Asia and Pacific and globally. Poor mental health, particularly depression, is another aspect of older age and one that is more likely to affect not only the poorer, less educated elderly, but also women. Depression is due partly to psychosocial stressors such as loss, loneliness, and lack of social support and partly to increasing frailty and illness. A correlation also exists between depression and comorbid physical conditions. Worldwide, the prevalence of depression in the elderly is estimated at

**FIGURE 2.4** Poorer and less educated elderly are more likely to face difficulty performing instrumental activities of daily living

*Instrumental activity of daily living z-scores among elderly, by education and income, selected countries*



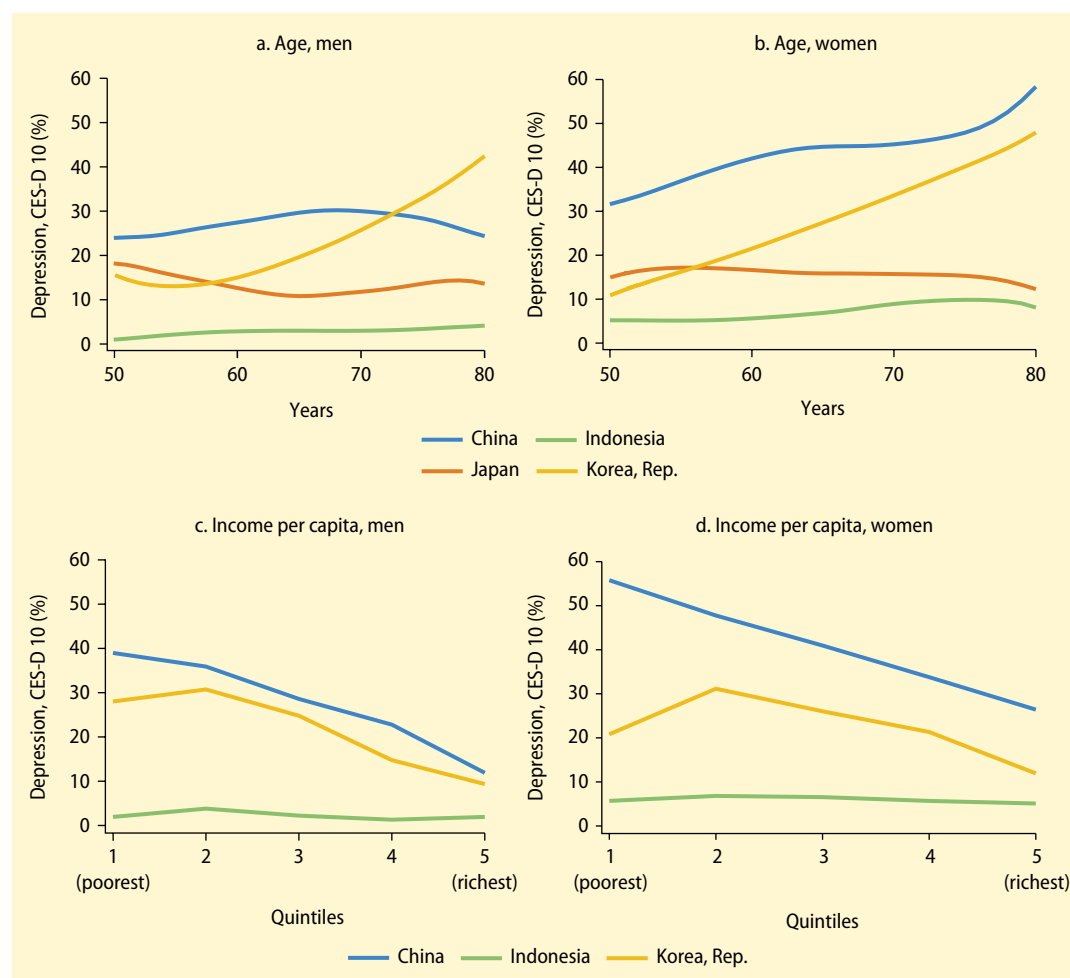
Sources: Giles and Huang 2015 based on data from CHARLS 2011, IFLS 2007, JSTAR 2011, and KLoSA 2010.

about 10 percent for those living independently, 25 percent for those with concurrent chronic diseases, and even higher for those in institutional care (McDougall et al. 2007).<sup>4</sup> Surveys in the region show that rates of depression tend to increase with age and are greater among poor and less educated elderly people (figure 2.5).<sup>5</sup> Rates also tend to be higher for older women than older men, in part perhaps because of the higher likelihood of women living alone. The correlation between depression rates

and age is much stronger in countries such as China and the Republic of Korea than in Indonesia and Japan. In addition to being a type of disability, depression is also a cause of higher suicide rates among the elderly (Reynolds and Kupfer 1999). The sharp increase in depression rates with old age in Korea is especially notable because suicide rates among elderly Koreans are some of the highest in the world at 80 per 100,000 in 2011: the rate has increased fivefold in the past two decades (Eyres 2014). Suicide rates

**FIGURE 2.5 Rates of depression tend to increase with age and are higher among poor households**

*Percentage depressed, according to the CES-D 10 measure, by age, gender, and income, selected countries*



Sources: Giles and Huang 2015 based on data from CHARLS 2011, IFLS 2007, JSTAR 2011, and KLoSA 2010.

Note: CES-D 10 = Center for Epidemiologic Studies Depression Scale.

are also high among the elderly in Japan and are linked to loneliness and income-related stressors.

Weakening cognitive function, particularly dementia, is another aspect of old age and a major source of disability and dependence. Dementia is not easy to diagnose, and estimates of prevalence vary considerably because of measurement issues. In 2000, just under 7 percent of people ages 65 and above in Organisation for Economic Co-operation and Development (OECD) member countries were estimated to be affected by dementia, with incidence of the disease rising sharply with age: fewer than 3 percent of those ages 65–69 years, but almost 30 percent of those ages 85–89 years (WHO 2012). Alzheimer's disease, the most common form of dementia, accounted for between two-fifths and four-fifths of all dementia cases in the OECD study. Evidence on dementia in East Asia and Pacific is more limited. In Korea, the prevalence of dementia among elderly people was estimated to be 9.4 percent in 2013, of which over two-thirds were described as having mild to moderate dementia. In Indonesia, analysis shows a strong negative relationship between age and memory for men and women (for Korea, Sunwoo 2013; for Indonesia, Witoelar, Strauss, and Sikoki 2012). With life expectancy increases, a substantial rise in prevalence of dementia is anticipated, although there is some evidence of compression of cognitive decline at older ages in OECD countries (Christensen et al. 2009).

If one looks at multivariate findings, living in poverty, having low education levels, and being female are associated with deterioration in the subjective well-being of older people (higher CES-D 10 [Center for Epidemiologic Studies Depression Scale] scores) in urban and rural areas of China, Indonesia, Japan, and Korea. In rural areas of China, Indonesia, and Korea, one observes a significant association between increasing age and decreasing subjective well-being. In addition, women tend to have a higher incidence of depression than men in rural areas of China and Indonesia, in Japan, and in Korea.

Consistent with descriptive results, individuals with secondary education and above in China, Indonesia, and Korea are less likely to be depressed, as are the elderly with tertiary education or greater in Japan. Whether because of a source of pride and a sense of success in raising their children or simply as a reflection of the prospect of higher private transfers, the elderly in both China and Indonesia are happier when they have more educated children.<sup>6</sup>

In addition to their income support role for the elderly, public pensions also have the potential to support other dimensions of well-being. Receipt of a pension is associated with higher body mass index in rural Indonesia and with significant reductions in the likelihood of depression among the elderly in both rural and urban areas of China and Indonesia.

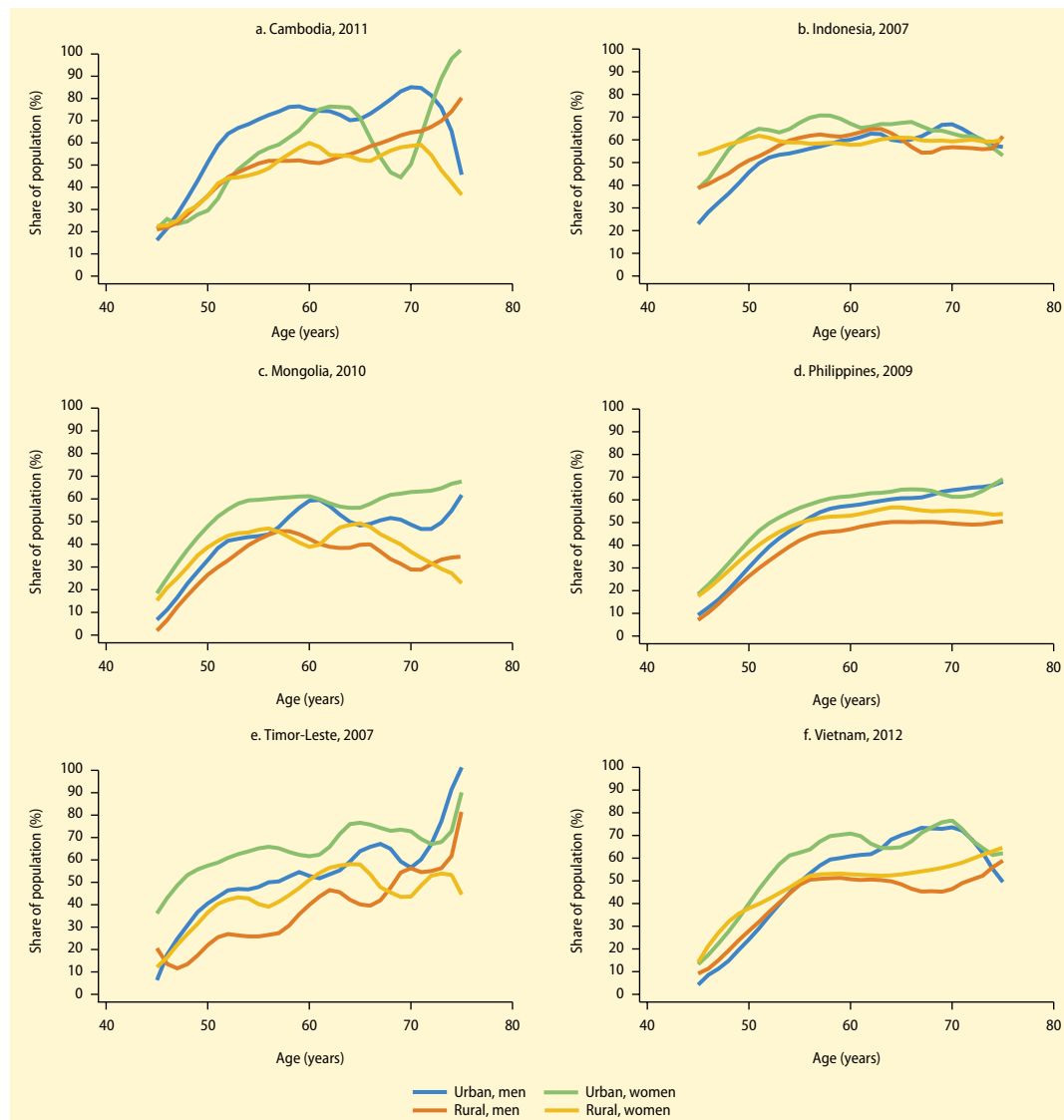
### **Living arrangements and access to support among older people**

Co-residence of older people with adult children is significant, although it varies considerably within East Asia and Pacific. Across the developing world, co-residence with adult children is frequently viewed as an important indicator of whether the elderly have access to both instrumental and financial support. In East Asia and Pacific, co-residence of older people is quite high and generally increases with age between age 50 and mid-60s (figure 2.6). For the elderly ages 60 and above, co-residence rates vary significantly across countries in the region and by gender and urban-rural location within countries. Rates are particularly high in countries such as the Lao People's Democratic Republic and Timor-Leste and, consistent with the global pattern, tend to be lower in countries at higher per capita income levels (Evans and Palacios 2015).

At the same time, in a number of East Asian and Pacific countries, elderly co-residence has declined significantly over time in the face of smaller families, higher incomes, and factors such as migration (figure 2.7). Compounding the demographic facts, privacy may be viewed

**FIGURE 2.6** Elderly co-residence rates are generally high in East Asia and Pacific but vary across countries and by gender and location within countries

*Share of elderly by age and gender living with an adult child, selected countries*



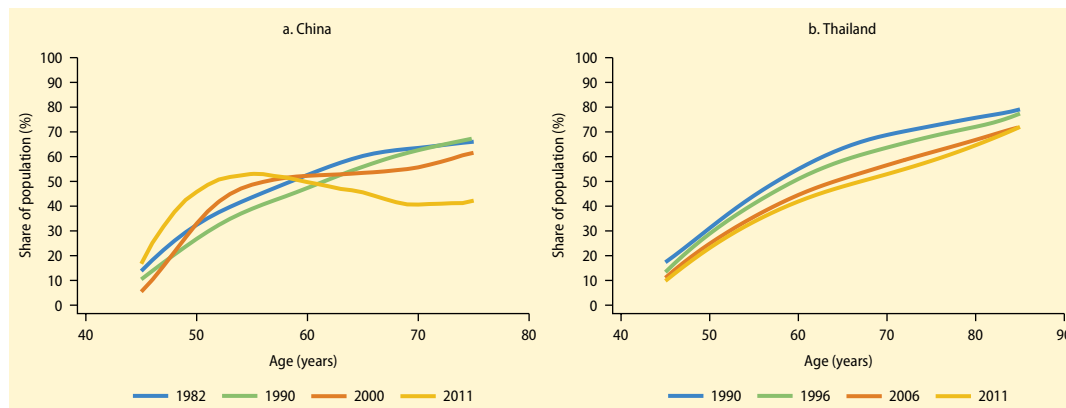
Sources: Giles and Huang 2015 based on data from IFLS 2007; World Bank East Asia and Pacific Standardized Household Surveys, various years; and VHLSS 2012. Note: Adult child is defined as child age 24 and above.

as a normal good by both older and younger generations. When the elderly and the young have the ability to live separately, they may simply choose to do so, without any consequence for well-being, as suggested by research from China (Giles and Mu 2007; Lei et al. 2012). This view is also consistent with global evidence from developing countries,

which finds both declining co-residence as countries get richer (figure 2.8) and lower co-residence among the richer elderly across countries (median co-residence in a sample of 61 developing countries in the mid-2000s was over 83 percent for people ages 60 and above in the poorest quintile but fell to only 64 percent for the richest quintile)

**FIGURE 2.7 Co-residence rates of older adults with adult children have declined over time in China and Thailand**

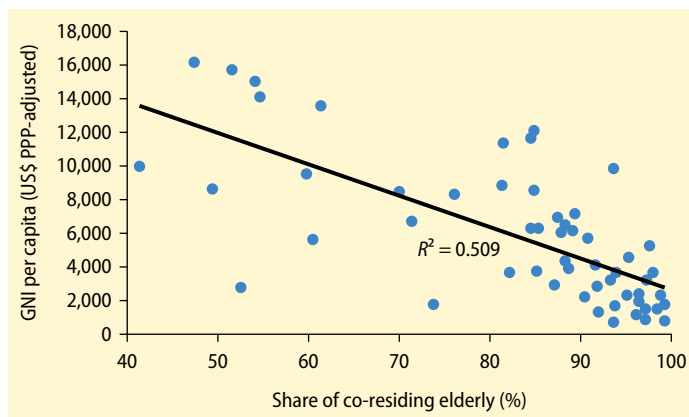
*Percentage by age of older adults living with adult children, various years*



Sources: Giles and Huang 2015 based on data from CHARLS 2011; China Census 1982, 1990, and 2000; and ThaiSES, various years.  
Note: Adult children are defined as ages 24 and above.

**FIGURE 2.8 As countries get richer, elderly co-residence rates tend to decline**

*Share of older people co-residing with non-elderly and GNI per capita, latest available year*



Source: Evans and Palacios 2015.

Note: GNI = gross national income; PPP = purchasing power parity. Elderly are defined as people 60 years and over, living with working-age adults whether or not related.

(Evans and Palacios 2015). Since the mid-1980s, co-residence with adult children in Thailand has declined steadily to only 56 percent in 2011 (Knodel 2014b). Rates of co-residence have also been declining in China and Korea. In China, the co-residence rate for those ages 65 to 70 fell from nearly 66 percent in the early 1980s to roughly 43 percent

by 2011, while in Korea, co-residence of those ages 65 and above decreased from over 80 percent in 1980 to well under 30 percent by 2010 (see Lee 2009). The speed of declines in co-residence contrasts with trends in a number of developed countries, such as the United States, where elderly co-residence was 72 percent in 1880 and fell below 30 percent only during the 1960s (Costa 1998). Most East Asian and Pacific countries also have notable variations between different groups of older people by rural-urban location and gender. Cai, Giles, and Meng (2006) also find that adult children in China are more likely to reside with older parents who have higher incomes and more housing wealth.

Although co-residence trends are important, they need to be interpreted with caution in terms of potential effects on the welfare of older people. On the one hand, evidence shows that co-residence has welfare benefits in East Asia and Pacific. In both China and Indonesia, for example, poverty and depression rates and ADL scores are higher for older people who live separately from children living in the same area than for those who live with adult children or have migrant children living farther away. On the other hand, the differences are not dramatic and, notably, separate residence does not necessarily

mean a decline in intergenerational support, as demonstrated in China by research using CHARLS (China Health and Retirement Longitudinal Study) and noted by researchers in Southeast Asia (Giles, Lei et al. 2015; Knodel 2014a).

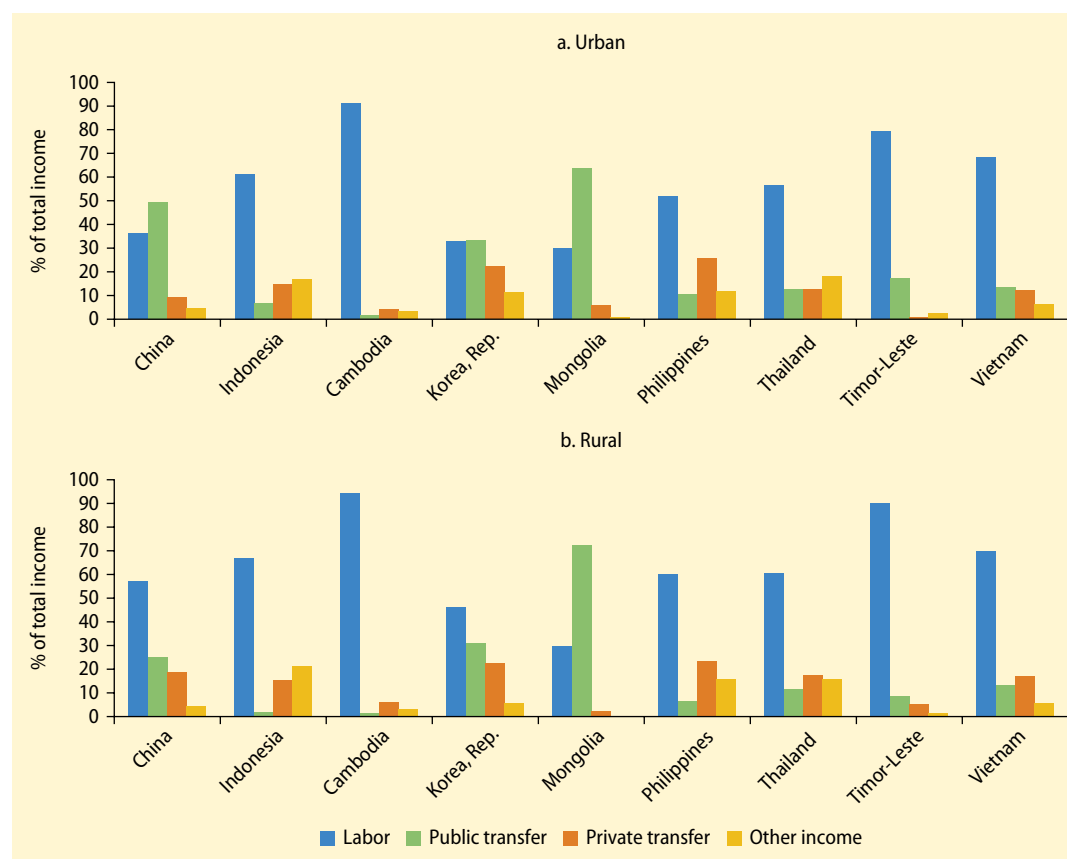
### Sources of financial support and labor market behavior of older workers

Labor income remains the dominant income source for people ages 60 and above in nearly all East Asian and Pacific countries, and even more so in rural areas in most of those countries. Figure 2.9 shows the main sources of

income for urban and rural people ages 60 to 85, respectively.<sup>7</sup> With the notable exceptions of urban China and Mongolia, labor continues to be the dominant source of income for older people across the region, even in OECD countries and in Korea (owing in part to its still immature pension system). Labor income also maintains its overall importance with regard to the elderly ages 70 and above in the region (see discussion below). In contrast, public transfers are a relatively minor share of elderly income in most cases, including in rural China where the relative importance of labor and transfers is very different from that in urban areas. The relative importance of public and private transfers is also notable

**FIGURE 2.9 Labor is the leading income source for people ages 60 to 85 in various East and Southeast Asian countries**

*Percentage of total income of people ages 60 and above, in rural and urban areas, from labor, public and private transfers, and other sources, selected countries*



Sources: Giles and Huang 2015 based on data from CHARLS 2011; IFLS 2007; KLoSA 2010; ThaiSES 2011; World Bank East Asia and Pacific Standardized Household Surveys, various years; and VHLSS 2012.

in China, including very low private transfers in several cases, but significant in other countries like Korea and the Philippines, and generally plays a slightly more significant role in rural areas in most countries. Overall, the commonly held assumption that familial support is the dominant source of income for elderly people in East Asia and Pacific is not borne out by the evidence, although such support clearly remains important, especially in settings like rural China and the Philippines where remittances are significant.<sup>8</sup>

The role of private and public transfers in reducing elderly poverty varies across the region, although private transfers remain important in nearly all East Asian and Pacific countries. To gauge the relative importance of public and private transfers for older people in the region, we follow an approach used by Park, Lee, and Mason (2012) to examine the likely rates of poverty in the absence of public and private transfers.<sup>9</sup> Figure 2.10 shows poverty rates by age, including with all earnings and transfers, without public transfers, without private transfers, and without all transfers. For China, Korea, and Mongolia, public transfers play a more significant role in reducing poverty. In China, for example, eliminating public transfers would lead to an increase in the poverty rate of a 70-year-old person by nearly 20 percentage points (a 70 percent increase in poverty). In contrast, elimination of private transfers would lead to only a five percentage point increase in the elderly poverty rate. In the Philippines, Thailand, and Vietnam, private transfers play a significant role in reducing poverty, though public transfers in Thailand and Vietnam also play an important role in supporting the elderly. However, not all elderly in the region benefit from substantial private and public transfers. In Cambodia and Indonesia, both public and private transfers play a relatively minor role in poverty alleviation.

Available evidence from East Asia and Pacific suggests that the risk of public transfers significantly crowding out private transfers is modest. Policy makers must consider how

additional public transfers for older people interact with private transfers and whether such transfers simply displace private transfers at different income levels of older people (so-called crowding out). Analysis of the responsiveness of private transfers to low incomes in households with elderly residents for this report shows the following:

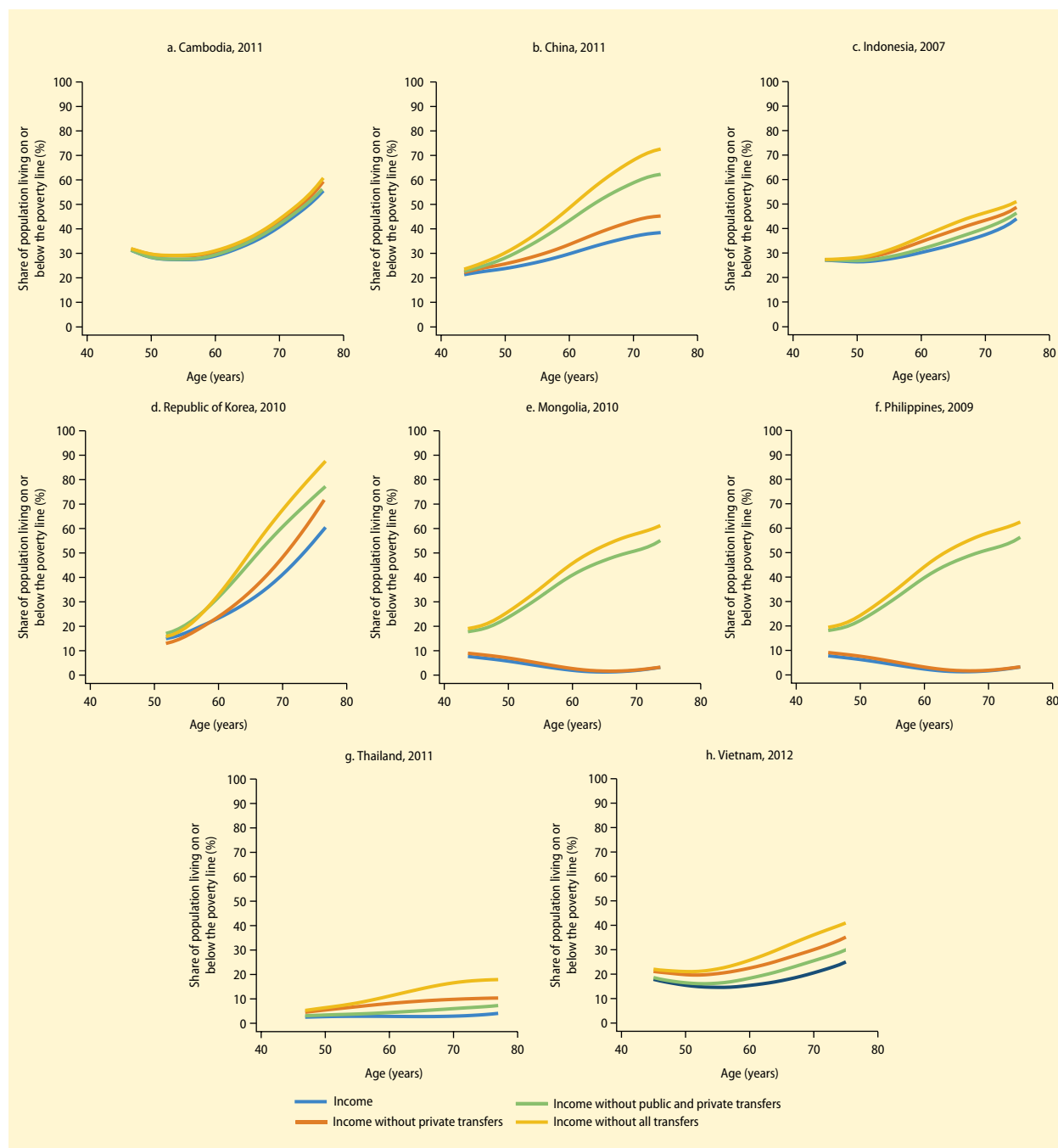
- For low-income elderly in China and Indonesia, private transfers are on average insufficient to lift older people out of poverty.
- Transfers from adult children tend to be significantly higher when some children are migrants (around twice the level on average in China and Thailand for elderly households at half the poverty line).
- A larger number of adult children is associated with higher private transfers to older people, but higher educational attainment of children is also associated with higher transfers, suggesting that smaller family size can be offset in part by better-educated (and paid) children.
- Most important, in many cases the effect of increased transfers from nonfamily sources (including the state) on transfers from adult children is modest.

These findings can be seen in table 2.2, which shows the elasticities of private transfers to older family members to increased transfers from other sources at different income levels of the elderly household. For both China and Indonesia, the evidence of crowding out is weak, with a reduction of only 3 to 9 percent in private transfers to the poorest elderly households in response to increased transfers from other sources, including social pensions. The pattern also holds for elderly households at and above the poverty line in both countries and is robust for households with and without adult migrant children. Thailand is distinguishable in terms of the scale of crowding out at low incomes, though in most cases, the reduction in private transfers is no more than one third. These findings have important implications for pension and transfer policies as countries throughout the region seek to expand coverage of public pension programs.



**FIGURE 2.10** Source of financial support can affect poverty rates in various East and Southeast Asian countries

Percentage below the income poverty line with and without public and private transfers, selected countries



Sources: Giles and Huang 2015 based on data from CHARLS 2011; IFLS 2007; KLoSA 2010; ThaiSES 2011; World Bank East Asia and Pacific Standardized Household Surveys, various years; and VHLSS 2012.

Note: Poverty for China is defined as daily per capita income less than ¥ 6.3 (official poverty line). Poverty line for the Republic of Korea is defined as half of daily mean national per capita income in 2009: 20.8 won. Poverty lines for other countries are defined as per capita daily income (2005 dollars purchasing power parity) less than US\$1.25.

**TABLE 2.2 Private transfers to elderly people are not significantly affected by level of transfers from public sources in East and Southeast Asia***Elasticities of private transfers to the elderly to increased transfers from other sources (percent change in private transfers), selected countries*

Country	0.5 × Poverty line	Poverty line	2.0 × Poverty line	4.0 × Poverty line
<i>China</i>				
With migrants	−0.027	−0.103	−0.046	−0.058
Without migrants	−0.062	−0.049	−0.009	−0.006
<i>Indonesia</i>				
With migrants	0.018	−0.086	0.114	0.035
Without migrants	−0.092	0.010	0.010	−0.022
<i>Thailand</i>				
With migrants	−0.177	−0.144	0.048	0.156
Without migrants	−0.194	−0.278	−0.126	−0.034
<i>Vietnam</i>				
With migrants	−0.379	−0.067	−0.105	−0.060
Without migrants	−0.196	−0.077	−0.042	−0.041

*Sources:* Giles and Huang 2015 based on data from CHARLS 2011, IFLS 2007, and ThaiSES 2011.

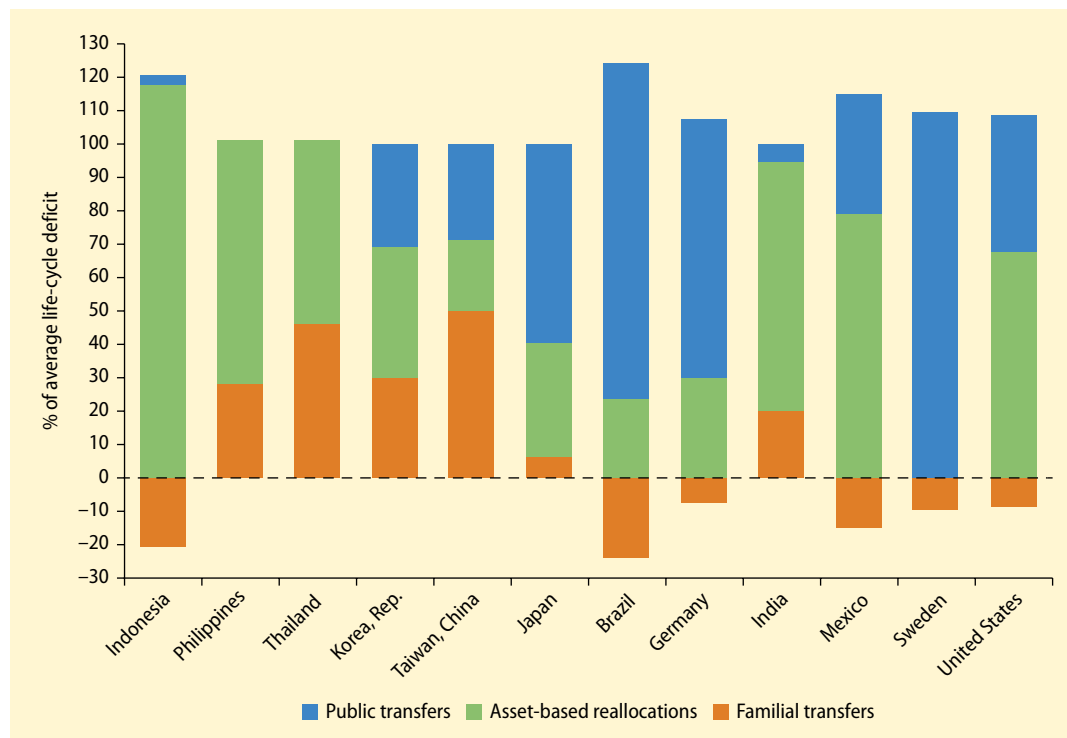
Another way to assess the relative importance of public and private transfers and self-support is to look across the life cycle, using the life-cycle deficit approach pioneered within the National Transfer Accounts (NTA). NTA is a system of national accounts decomposed by age profile. It reflects a whole-of-life approach that captures the net contribution of public and private transfers and asset-based reallocations (through channels such as housing, land, household durables, asset income, and savings) to the life-cycle deficit. The system is being more widely adopted in Asia and globally and provides a rich tool for cross-country comparisons.<sup>10</sup> As figure 2.11 shows, asset-based reallocations are the dominant source of support in Indonesia, the Philippines, and Thailand, whereas public transfers assume a more significant role in richer Japan; Korea; and Taiwan, China, as one might expect. The relative role of public transfers in East Asian and Pacific middle-income countries is minor compared to other middle-income countries such as Brazil, although familial transfers are more significant except in Japan. The results are a useful confirmation of the broad patterns seen in the analysis above, though some differences appear, most likely driven by the time period of the data. (For example, Thai NTA data are from

2004 and precede the major expansion of social pensions, and data for the Philippines are from 1999 and precede the introduction of a major conditional cash transfer program that now covers around 20 percent of households.) Notably, NTA does not capture cohort differences.

Although public transfers currently play a relatively modest role in old age support in East Asia and Pacific relative to other regions, social expectations of the relative roles of the state, families, and retirees themselves in postretirement support are changing rapidly. Policy makers and citizens in the region point to the important role of family support networks, though the earlier analysis shows limitations of such networks in providing elderly financial support. However, opinion surveys also show that expectations are changing rapidly, as shown in figure 2.12, where the expected roles of self-support and the state in financial support easily dominate expectations of support from adult children and family. The results also indicate that expectations of the state are considerably higher in the region's middle-income countries than in its higher-income countries like Korea and Singapore where societal aging is more advanced. For caregiving support, the expectations of the state are also growing (and are already higher in richer East Asian and

**FIGURE 2.11** The relative roles of public and private transfers and of savings and assets across the life cycle varies notably across East and Southeast Asian economies and between East and Southeast Asia and other regions

*Percentage of average life-cycle deficit for public and familial transfers and asset-based reallocations*



Source: National Transfer Accounts, <http://www.ntaaccounts.org>.

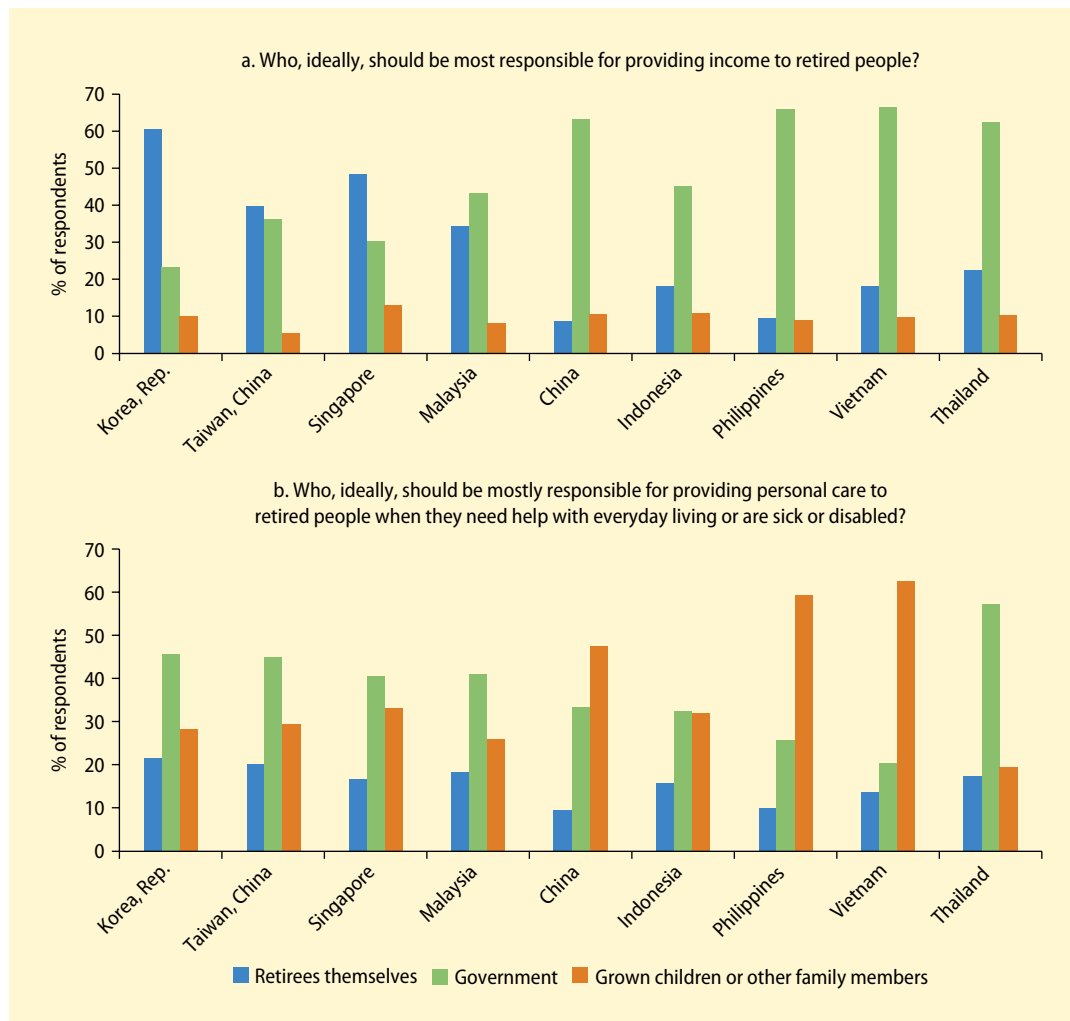
Pacific economies), though the expectations of children and family remain significant.

The persistent importance of labor income for older people in East and Southeast Asia is consistent with working until often very old age, but population averages conceal significant differences between urban and rural areas and by gender. As figure 2.13 shows, thinking in terms of distinct urban and rural labor markets for older people in the region makes sense. Although on average people work until late in life, many in urban areas withdraw from work relatively early. In cases like urban Chinese women, labor market withdrawal is very early, with only around one third still working at age 60. Nearly everywhere, urban women are the least likely to work into old age, and gender gaps in participation in both urban and rural areas are substantial (but see later discussion on caring roles undertaken by older people).

A worrisome feature of early withdrawal from the labor force in East Asia and Pacific is the likelihood of better-educated older people retiring early, in contrast to those in regions such as Eastern Europe and Central Asia. As figure 2.14 shows, those with college education are most likely to withdraw from work early in China and countries in Southeast Asia. Although the strength of the effect varies across countries, those with the least education have the longest working lives, often out of necessity because of low assets and savings and limited access to adequate old-age social security programs. At age 60, only 40 percent of men with postsecondary education in China are employed, but nearly 65 percent of men with only middle school education are still working. Similar patterns hold for women, and for men and women in Thailand. In Indonesia, gaps in employment rates of middle school graduates

**FIGURE 2.12 Attitudes on the preferred source of financial support in old age and on the expected source of personal care are shifting in East and Southeast Asian economies**

*Percentage of adults reporting government, selves, or family as likely sources of support, selected economies*

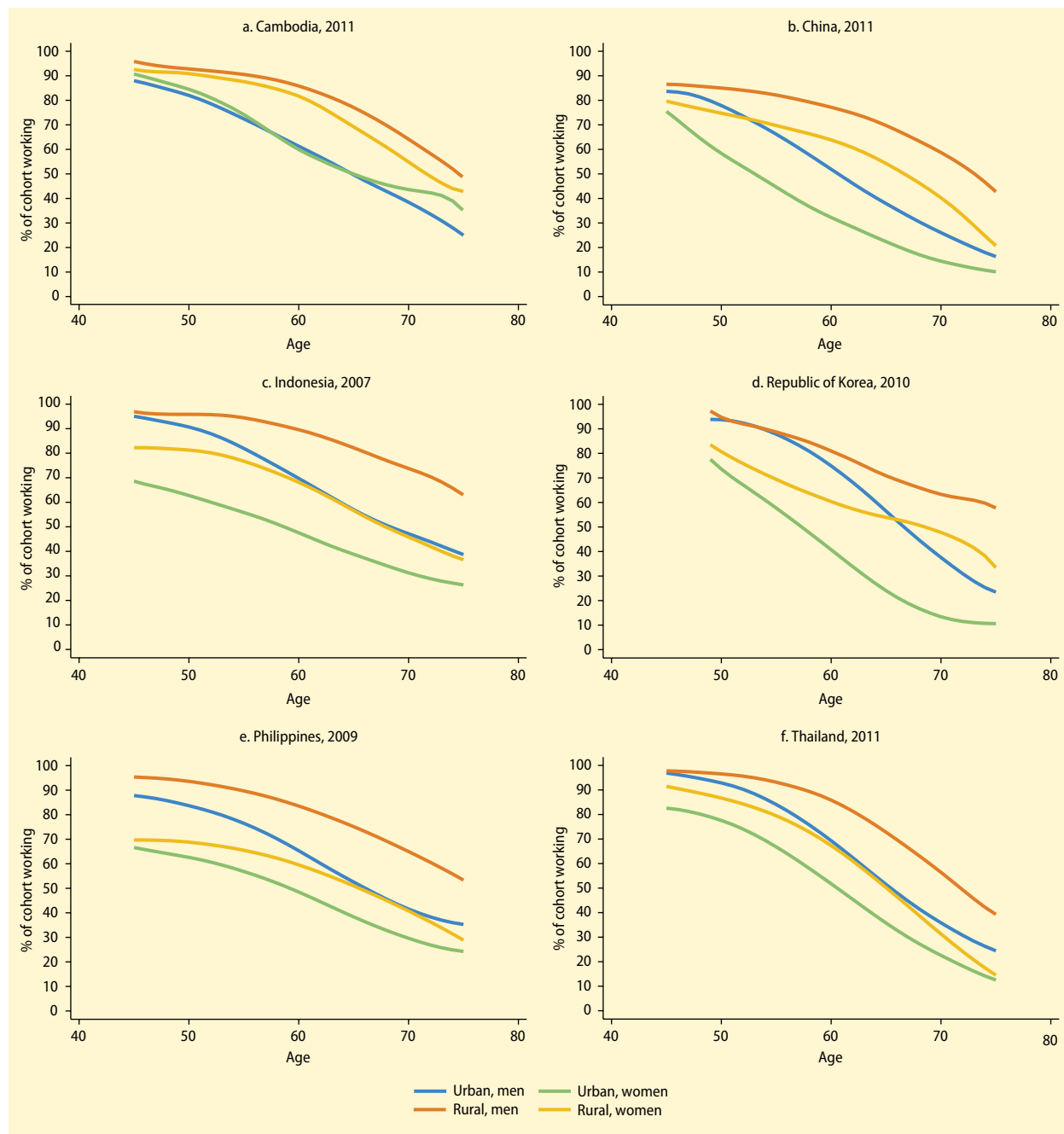


Source: Jackson and Peter 2015.

and elderly with high school or college education become evident at somewhat older ages, although in Vietnam, the gaps across education groups are not as pronounced. These patterns contrast with the EU13,<sup>11</sup> where participation rates of those with college education are 20 to 25 percentage points higher than those with middle school education at age 60 (Giles, Lei et al. 2015).

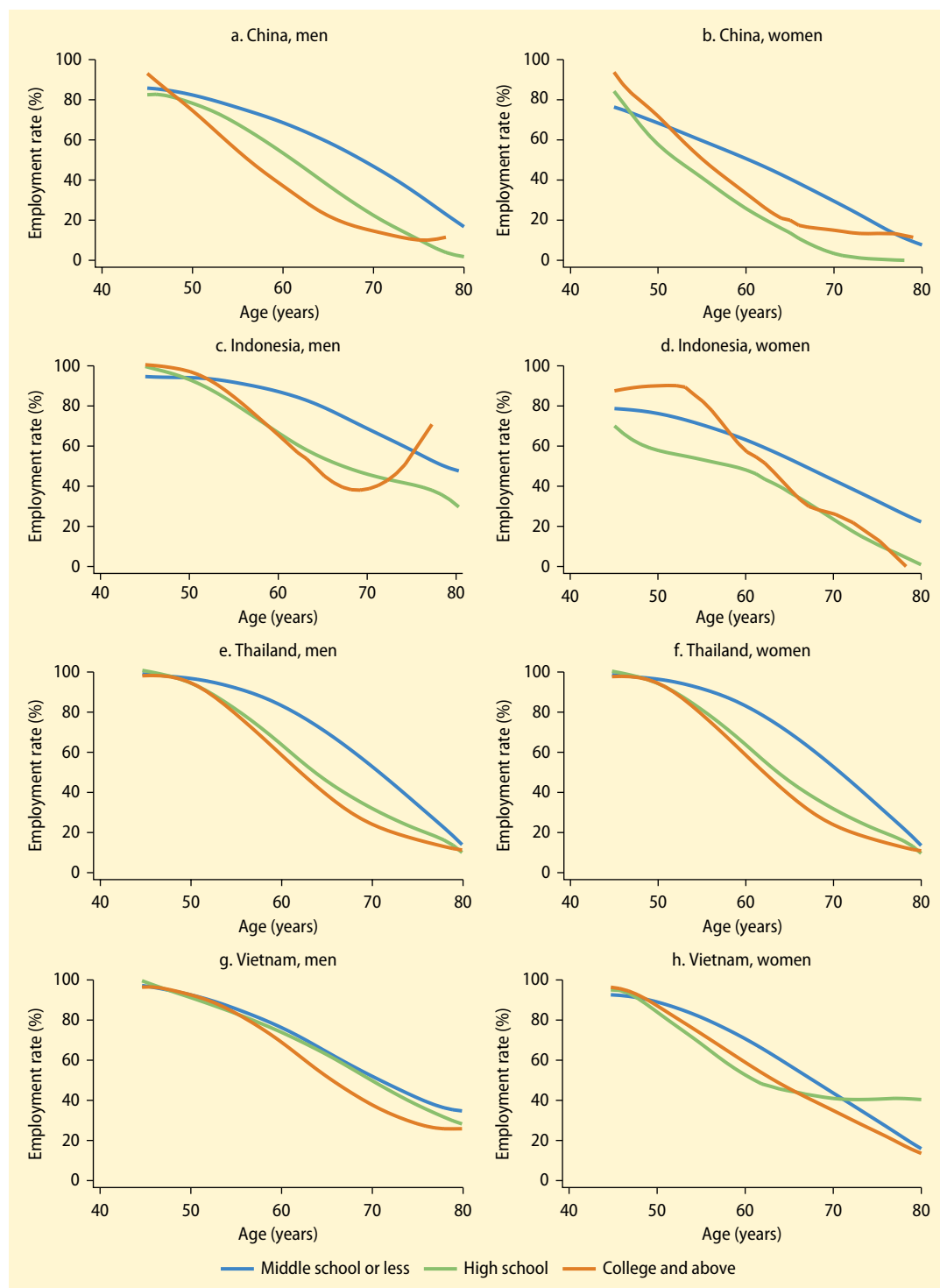
As figure 2.15 shows, self-employment accounts for an increasing share of older

people in work as they age. East and Southeast Asian countries commonly have self-employed rates of 90 percent for older rural men and women, most of whom work in agriculture or related activities. In urban areas, an increase in the self-employed share around age 60 reflects the fact that self-employed urban workers, often in commerce and trade, remain in the workforce while employees from the formal sector retire. In countries with a higher share of urban residents in the informal self-employed

**FIGURE 2.13 Labor force participation rates vary by location and gender in various East and Southeast Asian countries***Percentage in labor force by age, gender, and urban or rural location, selected countries*

Sources: Giles, Hu, and Huang 2015 based on data from CHARLS 2011; IFLS 2007; KLoSA 2010; World Bank East Asia and Pacific Standardized Household Surveys, various years; and ThaiSES 2011.

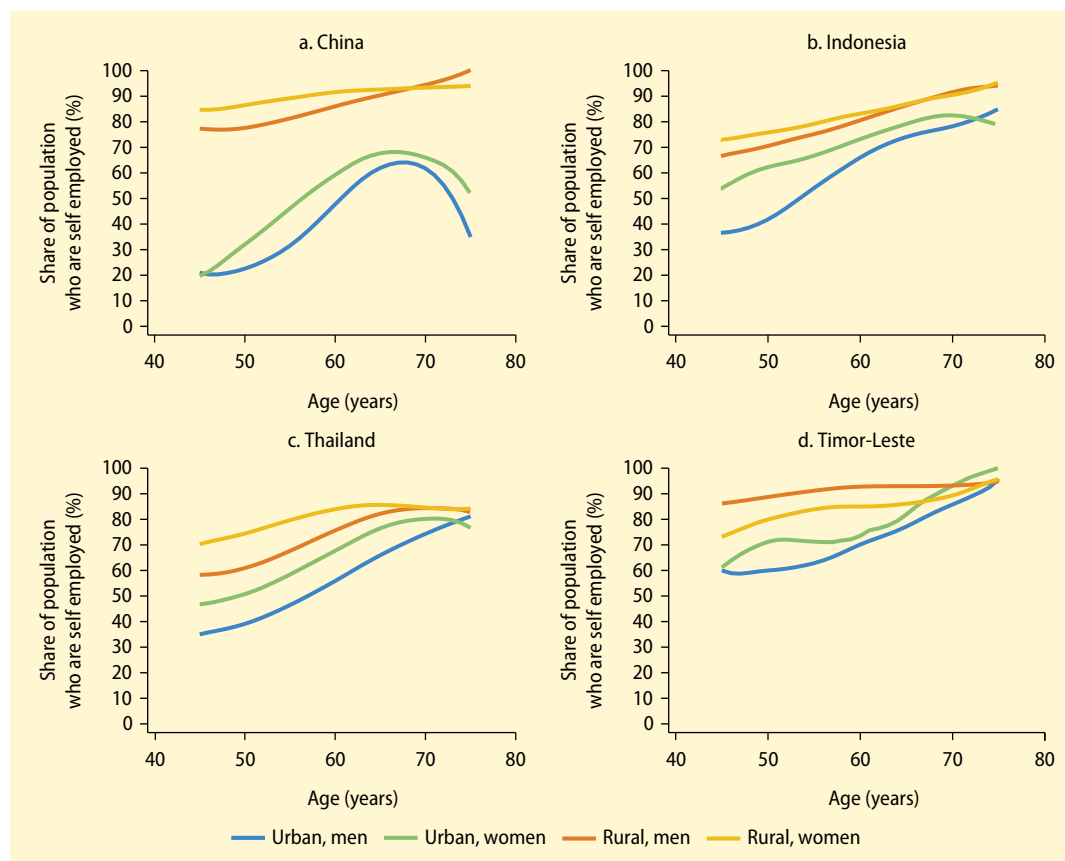
**FIGURE 2.14** Better-educated people tend to withdraw from the labor force earlier in East and Southeast Asia  
*Employment rate by age, gender, and urban or rural location, selected countries*



Sources: Giles, Hu, and Huang 2015 based on data from CHARLS 2011, IFLS 2007, ThaiSES 2011, and VHLSS 2012.

**FIGURE 2.15** Self-employment is an increasingly important source of work as people age in East Asia and Pacific

Percentage of self-employed as a share of total in work, by age, gender, and rural or urban location, selected countries



Sources: Giles, Hu, and Huang 2015 based on CHARLS 2011; IFLS 2007; ThaiSES 2011; and World Bank East Asia and Pacific Standardized Household Survey for Timor-Leste, various years.

sector—Timor-Leste is an extreme case—one does not see as big an increase in the self-employed share of older urban residents.

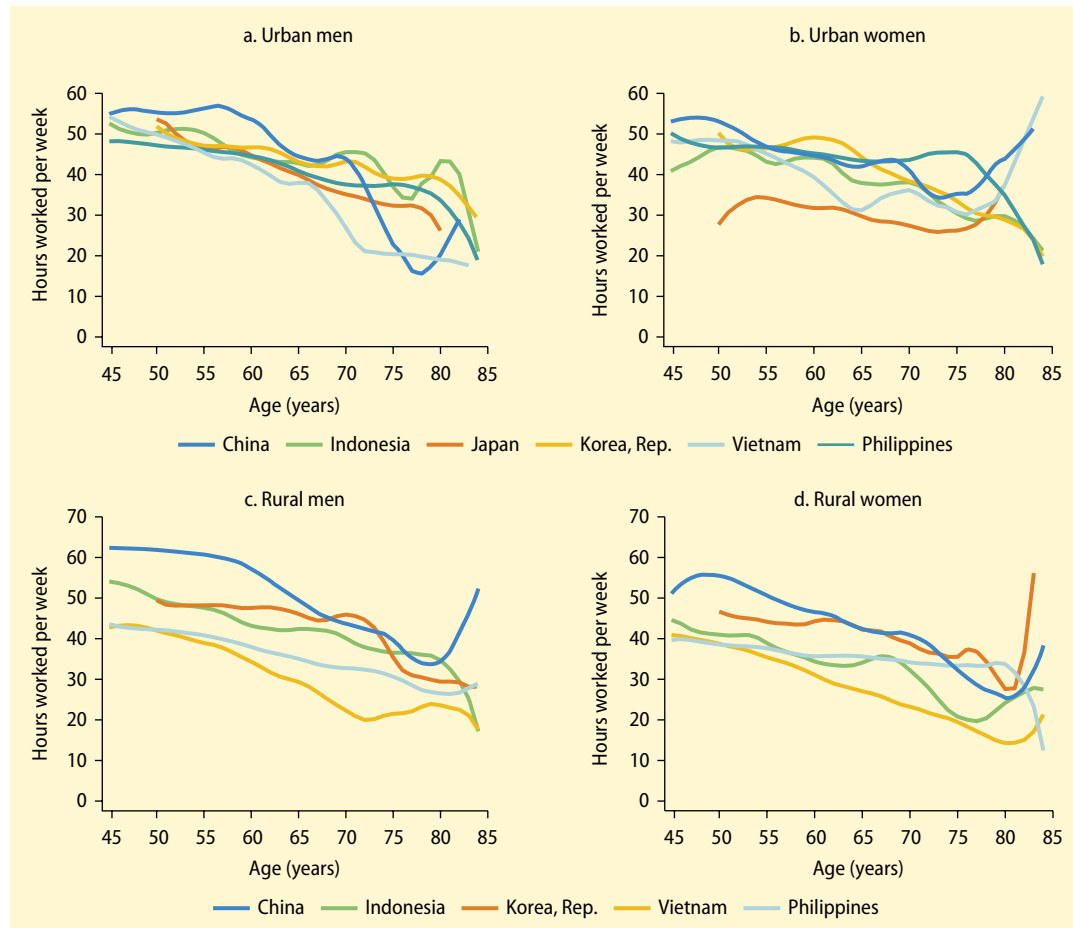
For those who continue working at older ages in East Asia and Pacific, hours of work remain quite high. In developed countries, retirement is often a gradual process: workers may reduce work hours at current employers, move to work arrangements requiring fewer hours per week, or even transition in and out of retirement. In contrast, in much of East Asia and Pacific, hours of work for older people conditional on working remain quite high in both rural and urban areas (figure 2.16). For people working at age 65 in the six countries shown, urban men work on average 40 hours or more per week, and all women work on average

30–45 hours per week depending on the country. The situation in rural areas is even more striking, with rural men continuing to work at age 75 and women working between 20 and 35 hours per week at the same age. Given the nature of most rural work, such long hours and high participation rates confirm the impression of many rural people in the region having to “work till they drop.”

Differences exist across countries also. In urban China and Vietnam, hours of work for elderly still working (primarily the self-employed) tend to decline little and then drop off sharply at age 70 and age 65, respectively, in contrast to the more gradual decline in hours worked in other countries. In rural

**FIGURE 2.16** Those who continue to be employed in older age work long hours until advanced ages in East and Southeast Asia

*Hours of work per week among those working, by age, gender, and rural or urban location, selected countries*



Sources: Giles, Hu, and Huang 2015 based on data from CHARLS 2011, FIES 2009, IFLS 2007, JSTAR 2011, KLoSA 2010, and VHLSS 2012.

Note: Employment is defined as those who have worked for more than one hour weekly on average.

Vietnam, the decline in work hours exhibits a steeper slope, and hours worked tend to be well below those of other countries. In contrast, in China men and women still working in agriculture put in long hours at relatively old ages, raising the question whether the absence of migrant adult children contributes to a scarcity of labor and higher labor input of rural elderly.

What are the primary drivers of the diverse labor market behavior of older people in East Asia and Pacific, both within and across countries? Potential drivers include (a) availability of a pension, (b) health status of the older

person and his or her spouse, (c) demands for caring for grandchildren or older parents, and (d) work status of the spouse. Each driver is discussed in turn.

First, availability of a pension appears to have a strong association with lower labor force participation when the pension provides adequate financial protection. For example, after controlling for age, education, health status of respondent and spouse, wealth, and family demographic characteristics, we found that receiving a formal sector pension is associated with 52 and 54 percent reductions in the probability that men and



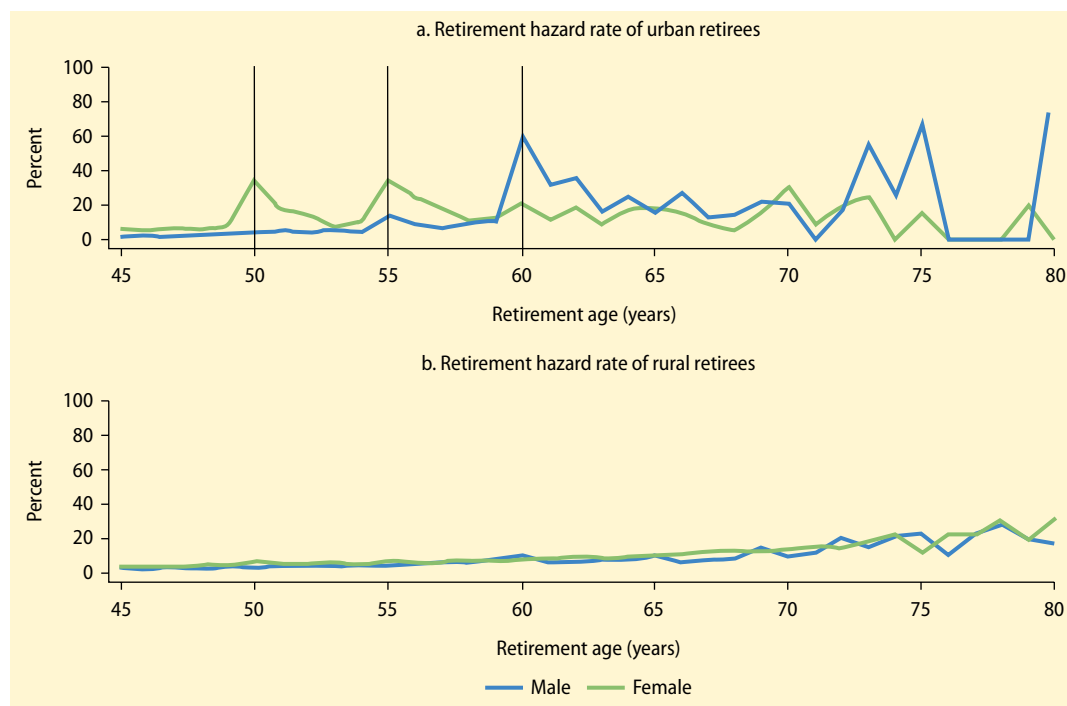
women, respectively, are working in urban China. The behavioral response of older workers to mandatory retirement provisions can be seen in the hazard rates in figure 2.17, which contrasts the smooth glide into withdrawal from work in rural areas with spikes in retirement at official pension ages in urban areas (ages 50 and 55 for blue-collar and white-collar women, respectively, and age 60 for men). Although China has no explicit provisions against working beyond retirement age, the relative generosity of the urban employee pension combined with mandatory retirement makes them much less likely. Similarly, one sees a pronounced (though weaker) negative effect on employment of men in urban and rural Indonesia, with 19 and 25 percent reductions, respectively, in probability of working. In contrast, in Japan and Korea, there is a negligible effect of pension receipt for either gender: in Korea,

most likely because of the immaturity of the pension system and modesty of benefits for the current elderly cohort;<sup>12</sup> and in Japan, because availability of disability and survivor benefits is likely to have larger effects. For the Japanese, however, receipt of a pension is associated with 3.0 hours less work per week for those who work, and receipt of disability benefits is associated with 6.0 hours less work per week for men and 3.3 hours less for women.

As would be expected, the generosity of pensions is another important factor in labor market effects. The continued work after retirement of residents receiving social pensions in China, the Philippines, and Thailand and the high labor supply rates of workers over age 55 in Japan and Korea suggest that retirement benefits are simply not generous enough to lead to exit from work. For example, figure 2.18 shows that over 80 percent

**FIGURE 2.17 Pension availability and mandatory retirement rules have strong effects on labor force behavior of older Chinese workers**

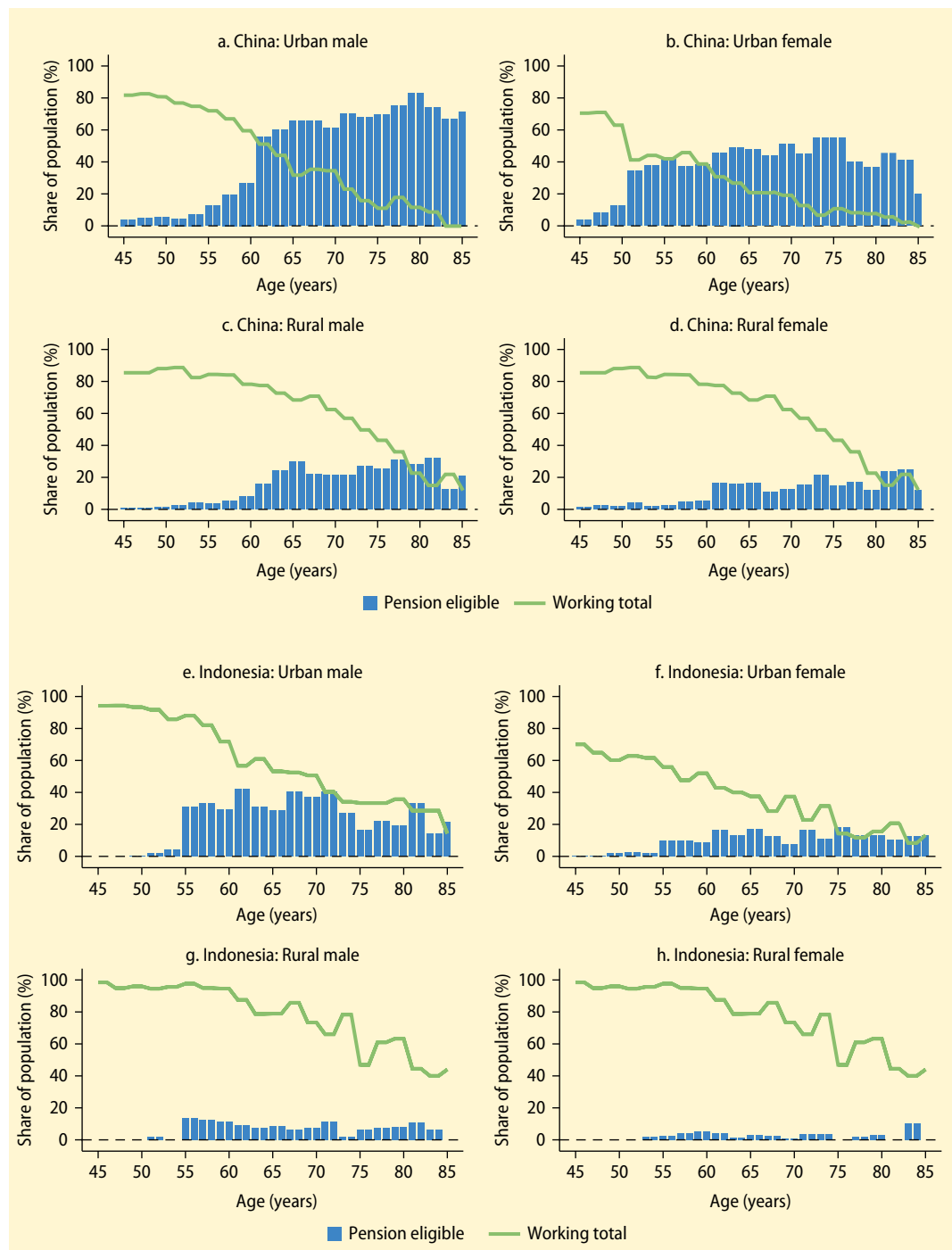
*Retirement hazard rates by gender, age, and urban or rural location, China, 2011*



Sources: Giles, Lei et al. 2015 based on data from CHARLS 2011.

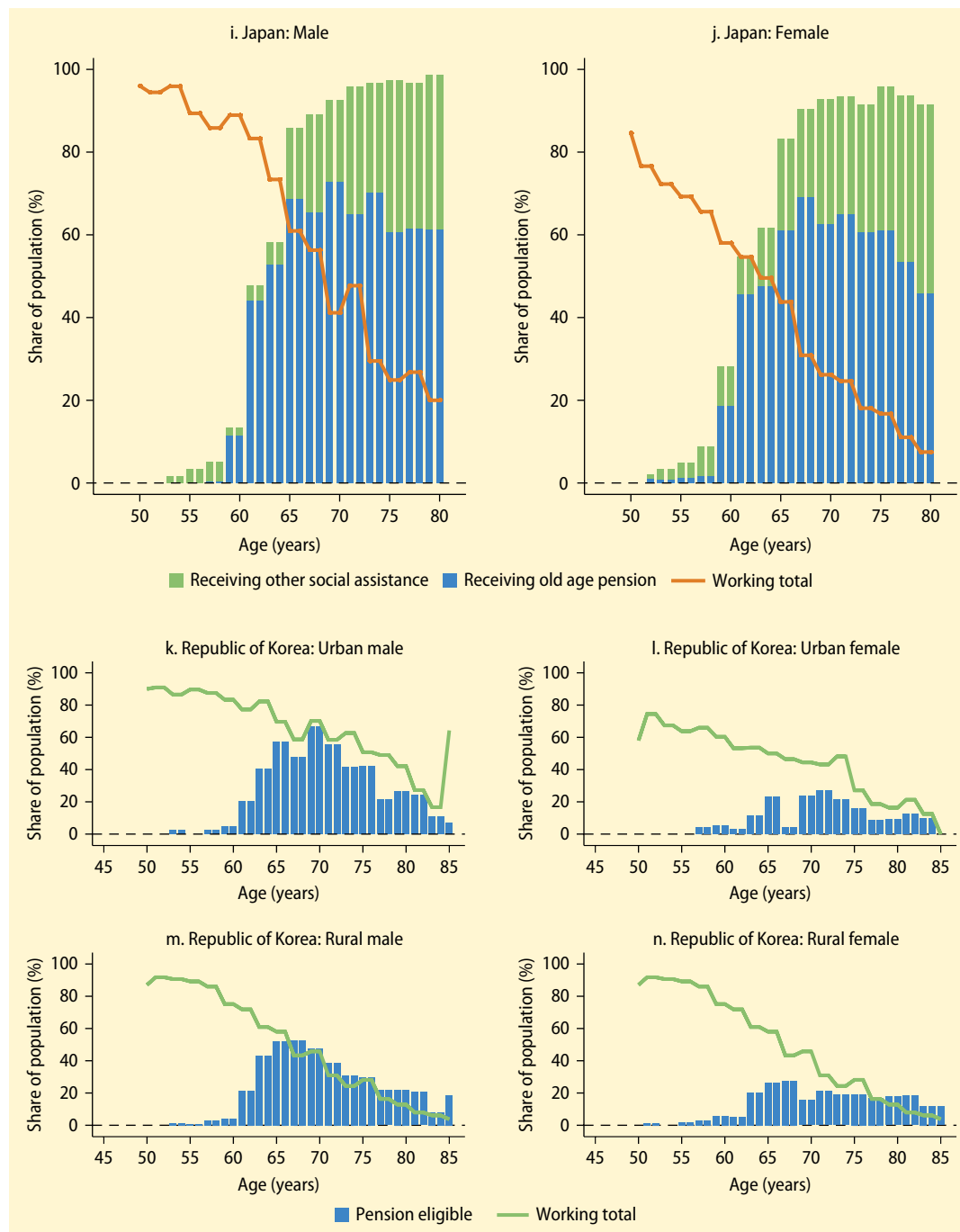
**FIGURE 2.18 Labor force participation is influenced by pension receipt in select East and Southeast Asian countries**

*Percentage of people in labor force by age, gender, and urban or rural location, and percentage eligible for pensions, selected countries*



**FIGURE 2.18 Labor force participation is influenced by pension receipt in select East and Southeast Asian countries** (continued)

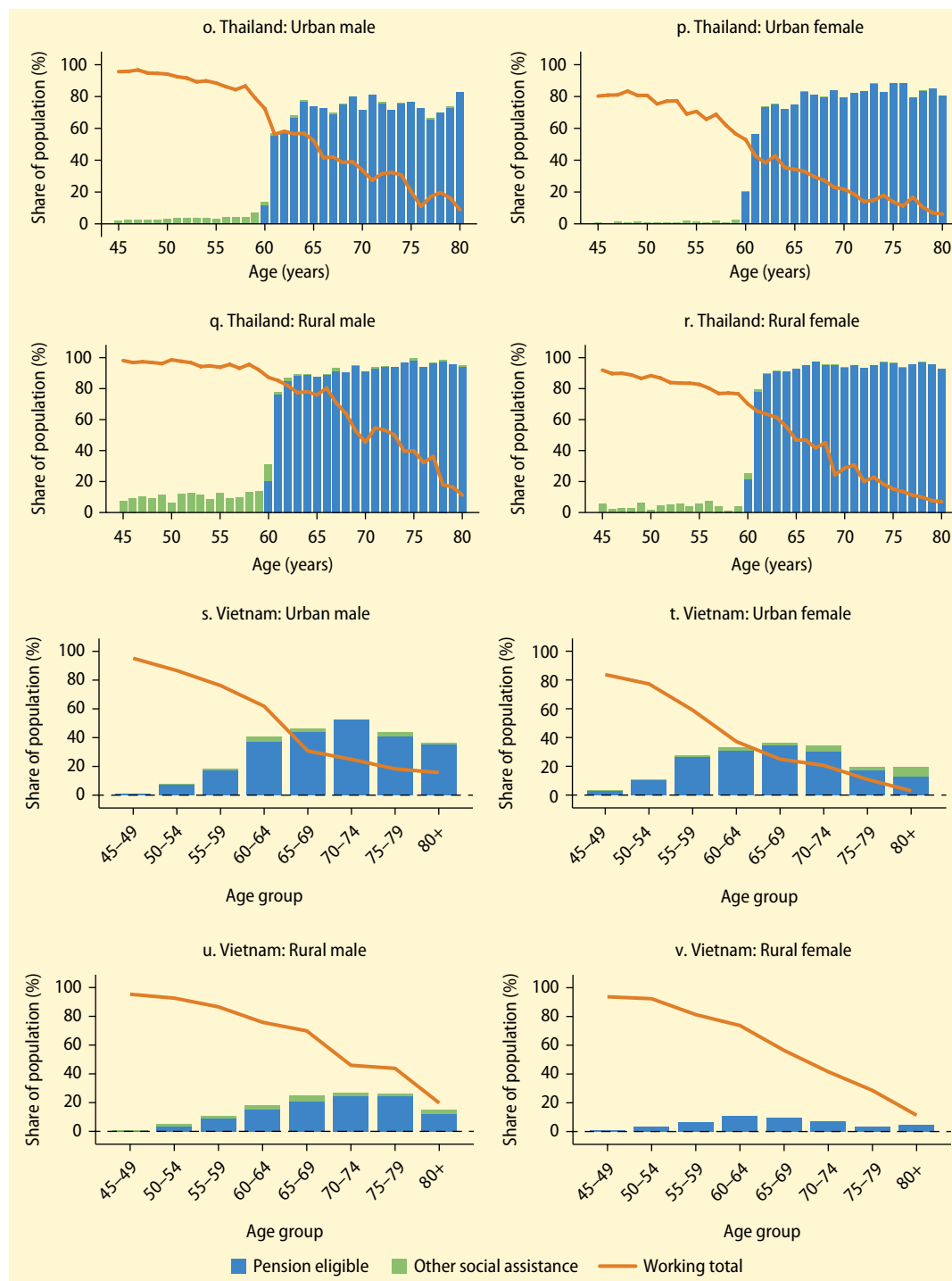
Percentage of people in labor force by age, gender, and urban or rural location, and percentage eligible for pensions, selected countries



*figure continues next page*

**FIGURE 2.18 Labor force participation is influenced by pension receipt in select East and Southeast Asian countries** (continued)

Percentage of people in labor force by age, gender, and urban or rural location, and percentage eligible for pensions, selected countries



Sources: Giles, Hu, and Huang 2015 based on data from CHARLS 2011, IFLS 2007, JSTAR 2011, KLoSA 2010, ThaiSES 2011, and VHLSS 2012.

of Thailand's population receives a pension by age 61, but employment rates for rural men are nevertheless well above 50 percent for those as old as age 75. Even in Thailand's urban areas, both men and women continue to work at much higher rates than their counterparts in urban China, where formal sector pensions are more generous. In Vietnam, an early exit of both men and women from work—corresponding to pension eligibility ages—is evident, even though rates of pension receipt are not as high as in China.

Second, lower health status, as measured through ADLs and IADLs, is strongly associated with reductions in employment (table 2.3).<sup>13</sup> According to measures of ADL and IADL, in China, an increase in one disability is associated with 5.2 and 6.0 percent reductions in probability of employment for urban men and women, respectively. In China's rural areas, the same increase in disability results in 4.2 and 3.8 percent reductions in the probability of working for men and women, respectively. Because most work in rural areas is more physically demanding, the weaker effect of poor health on the probability of working in rural areas is striking and underscores the difficulty of retiring for China's rural residents. A similar pattern is also witnessed in Indonesia. An increase in disability is associated with 3.0 and 5.7 percent reductions in probability that urban men and women, respectively, will be employed, and 5.0 and 5.5 percent reductions for rural men and women, respectively. In Korea, where reported disabilities are considerably lower than in China or Indonesia, the contribution of lower health status to exit from work is also less pronounced. Decreases associated with disability are 4.5 and 2.3 percent

reductions in probability of employment for urban men and women, respectively, and 3.9 and 2.2 percent reductions for rural men and women, respectively. Japan shows similar patterns. Poor health status is also associated with fewer hours of work for those elderly continuing to work in rural China and urban Indonesia (Giles, Lei et al. 2015).

Third, provision of care to children and elderly also affects the retirement behavior of women in East Asia and Pacific. A range of studies shows that provision of family-based care is associated with fewer working hours and a higher probability of exit from the workforce (Jacobs et al. 2014; Meng 2011; Van Houtven, Coe, and Skira 2013). For China, responses to CHARLS suggest that women over the age of 50 contribute significant amounts of time to provision of both child care (largely of grandchildren) and elder care. The shares and hours of people in China ages 45 and above who provide care to grandchildren and older people are shown in table 2.4. Overall, 28 percent of individuals ages 45 and above provide care to grandchildren, which rises to more than 45 percent for women ages 55 to 59. (Nearly 14 percent of individuals ages 45 and above care for older parents and parents-in-law, which increases to 16 percent for women ages 55 to 59.) For people over age 45 who provide some care, average time caring for grandchildren is equivalent to a full-time job (43 hours for women and just under 39 hours for men). Time spent providing care for older people is also not insignificant (equivalent to a 20-hour per week, part-time job on average). Although a higher share of women provide care and work longer hours on average, the share of men providing care and their time intensity is not dramatically

**TABLE 2.3** Poor health results in lower probability of work at older ages in East and Southeast Asia

*Percentage of reduction in employment rate when in poor health, by gender and urban or rural location*

Country	Urban men	Urban women	Rural men	Rural women
China	–5.2	–6.0	–4.2	–3.8
Indonesia	–3.0	–5.7	–5.0	–5.5
Korea, Rep.	–4.5	–2.3	–3.9	–2.2

Sources: Giles, Hu, and Huang 2015 based on data from CHARLS 2011, IFLS 2007, and KLoSA 2010.

Note: All results are significant at 1 percent level.

**TABLE 2.4** Hours spent providing care for children and elderly among Chinese cohorts ages 45 and above

Recipient of care	Age of care provider (years)	Share providing some care (%)	Hours worked by care provider					
			Women			Men		
			All	Urban	Rural	All	Urban	Rural
Parents and parents-in-law	45–49	29	18.3	17.0	20.4	17.5	15.1	20.4
	50–54	25	16.3	17.5	14.5	14.7	13.3	16.0
	55–59	16	16.6	16.5	16.6	15.1	17.2	12.6
	60–64	8	20.4	20.9	20.0	26.5	21.1	32.2
	65 and above	3	24.1	32.9	14.9	23.8	23.1	24.7
Grandchildren	45–49	15	43.4	42.6	44.1	36.1	45.1	26.5
	50–54	29	43.2	47.1	39.8	35.4	29.9	39.2
	55–59	38	45.2	43.1	47.6	38.9	36.6	41.2
	60–64	36	43.7	43.0	44.5	40.8	38.3	43.1
	65–69	32	38.4	33.6	42.7	40.8	38.8	43.2
	70 and above	18	33.1	30.8	36.0	38.2	36.0	40.5

Sources: Giles, Hu, and Huang 2015 based on data from CHARLS 2011.

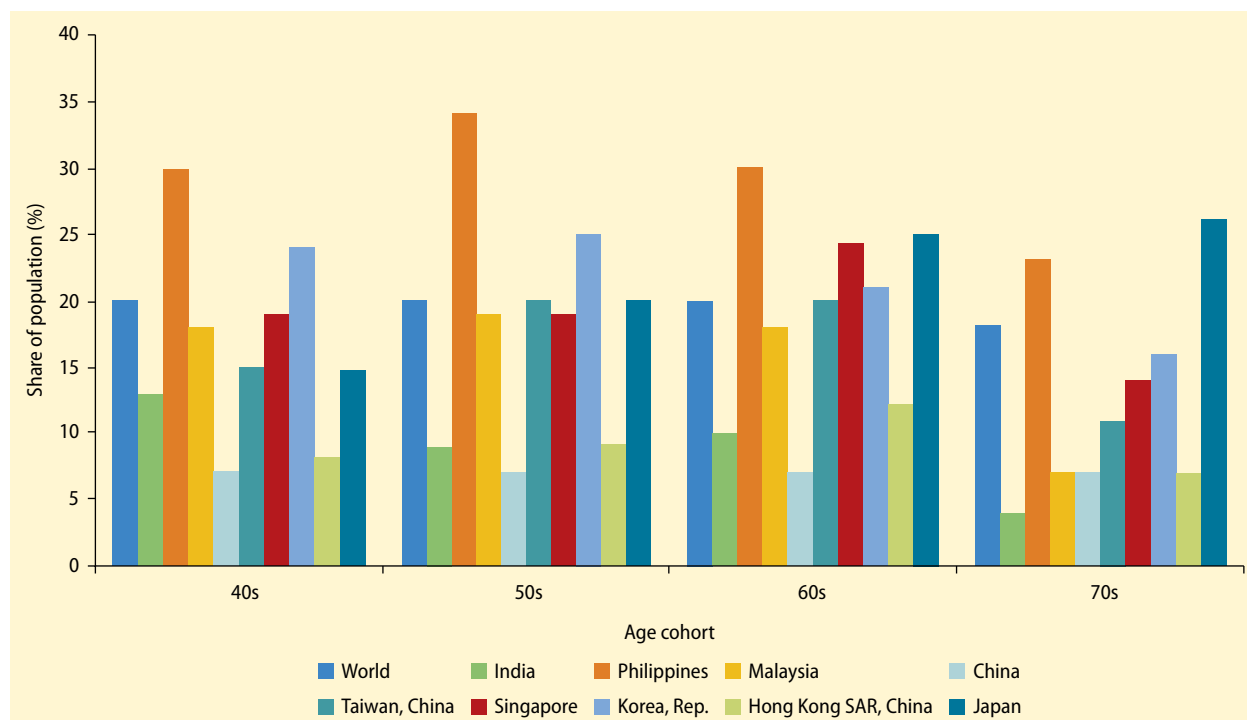
lower, suggesting that couples frequently engage in joint provision of care.

The contribution of older people to child care is also underscored in multivariate labor supply analysis. In China, presence of a child under age six in the household is associated with 17.6 and 3.0 percent reductions in the probability of employment for urban and rural women, respectively. The presence of children or elderly showed no effect on male employment. In Indonesia, the presence of children ages 6 to 12 is associated with 11.7 and 9.7 percent reductions in the probability of employment for urban and rural women, respectively. In Korea, by contrast, the presence of children ages 6 to 12 has a more significant negative effect on labor force participation of older urban *men*. However, this effect could be driven by already low participation of urban women. In Japan, the probability that a woman will be employed is 8 percent lower in households with an older resident over age 80 (Giles, Lei et al. 2015).

Finally, in addition to care for family members, older people in East and Southeast Asia may contribute to lower labor force participation because of volunteer work, although the scale of involvement is generally lower than global averages. Figure 2.19 shows that around 20 percent of people ages

40 and above globally are engaged in volunteer work at different ages. However, shares are lower in most Asian countries (with the notable exceptions of Japan, Korea, and the Philippines) and sharply lower in China and India. The deficit is particularly notable among those ages 70 and above, suggesting a broader challenge of social participation for the oldest elderly. Offsetting low average participation somewhat, in most East Asian and Pacific economies shown, those who volunteer work at or above the global average number of hours (Leeson and Harper 2007). Participation in volunteer work is important not only for its direct contribution to societal welfare, but also as a channel for sustaining social participation of older people.

A strong correlation also exists for the employment of older spouses, suggesting that spouses have joint labor supply decisions and may have a preference for retiring together (table 2.5). The most pronounced effect is in urban China, where employment of a spouse is associated with 40 and 58 percent increases in probability that men and women are working, respectively, and in Japan, especially for women. In rural China, a working spouse is associated with 23 and 33 percent increases in probabilities that older men and women, respectively, are working.<sup>14</sup> In Indonesia and Korea, the

**FIGURE 2.19 Older people in East and Southeast Asia are a significant source of volunteer work***Percentage of population by age participating in volunteer work, selected economies*

Source: Leeson and Harper 2007.

**TABLE 2.5 Influence of employment of a spouse on probability of own employment***Percentage change in probability of own employment with working spouse*

Country	Men	Women
<i>China</i>		
Urban	48	58
Rural	23	33
<i>Indonesia</i>		
Urban	11	19
Rural	9	12
<i>Japan</i>	24	56
<i>Korea, Rep.</i>		
Urban	13	21
Rural	14	28

Sources: Giles, Hu, and Huang 2015 based on data from CHARLS 2011.

association between own work status and a working spouse is also significant, but lacks the same effect on probability of employment. In terms of hours worked for those who continue to work, a working spouse is

associated with longer working hours for rural men and women in China, Indonesia, and Korea, and for all men in Japan. Joint decisions by spouses on labor supply, or retirement, are of considerable policy relevance when one considers incentives to increase working ages of men and women, particularly in countries where male and female retirement ages differ significantly (as in China and Vietnam).

## Conclusion

The diverse patterns of well-being, labor market behavior, and sources of support across and within East Asian and Pacific countries mean that policies will need to take into account differing initial conditions. Policy makers will need to pay close attention to various aspects of elderly welfare, a task made more complex by the diversity of situations across countries and between different groups of elderly within

countries—rich and poor, rural and urban, and healthy and frail or depressed, as well as men and women and formal and informal workers. For example, improving the well-being of older workers who have spent their lives working in agriculture or the informal sector and facilitating an ability to retire could be addressed by broadening access to pensions and other public support in old age. However, these interventions will need to be balanced against potential disincentives to work at older ages, especially for the urban elderly. Thus, a key challenge for policy makers lies in extending support for the elderly at risk of poverty while also incentivizing later retirement among older urban and formal sector workers ages 50 to 69.

Building on the microlevel discussion from this chapter, the following chapters examine the policy challenges with respect to the macroeconomy, labor policies, pensions, health care, and long-term care. Chapter 3 focuses on the macroeconomic and fiscal implications of rapid aging in East Asia and Pacific. As noted, behavioral and policy responses to aging will be crucial in determining the nature and scale of effects on growth and the fiscal positions of East Asian and Pacific countries. The microlevel insights from this chapter are useful for anticipating potential responses.

## Notes

1. Because of data limitations, old age poverty is measured according to households with elderly members, households with only elderly members, and others with mixed composition. To the extent that intrahousehold resource allocation is biased toward younger members, the welfare of individual elderly persons may be lower.
2. ADLs are basic self-care tasks, and IADLs are tasks that allow an individual to function independently. Unlike ADLs, IADLs can be delegated to someone else and thus are not uniformly carried out by everyone themselves. In addition, some IADLs relate to functioning within a community rather than only within the home.
3. ADLs are measures of physical functioning, ranging from the ability to walk 1 kilometer to the ability to get out of bed. IADLs are measures of ability to perform activities important for independent living, such as shopping, preparing meals, and managing the household budget.
4. These percentages exist even though median self-rated happiness tends to be higher for those above age 50 than for adults between ages 19 and 49 (Deaton 2007).
5. Subjective well-being was calculated using the Center for Epidemiologic Studies Depression Scale (CES-D 10), which is constructed from 10 questions commonly used to study the incidence of depression.
6. One should be careful in assigning causality to this relationship because having a happier disposition throughout one's life may have contributed to raising successful (and educated) children.
7. Results for women in urban and rural areas are quite similar in all countries (2–5 percentage points different and lower in most cases) except Korea, where women's labor income share is 11–15 percentage points lower than that of men.
8. Taking account of nonincome support is important because older people living with adult children in China, Indonesia, and Thailand receive lower new transfers from adult children but have regular nonfinancial support (see Giles, Lei et al. 2015).
9. Private transfers include all cash and in-kind transfers provided to households with elderly members, and public transfers include all forms of poverty assistance and pensions. The approach assumes no labor behavioral responses.
10. See Mason et al. (2006) for a description of methodology and for subsequent publications edited by Andrew Mason and Ronald Lee for cross-country applications. NTA also provided an important underpinning for the Asian Development Bank's 2012 volume on aging and growth in Asia (Park, Lee, and Mason 2012).
11. The 13 new members of the European Union (EU13) are Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, the Slovak Republic, and Slovenia.
12. Research conducted in Korea showed that over 92 percent of respondents expressed a desire to take their pension after the eligible age, in part to improve adequacy (Korea National Pension Research Institute 2012).



13. If one looks at spouse health status using an index of spouse ADLs and IADLs, there is evidence of a relatively small added worker effect of poor spouse health status on employment of men and women in urban and rural areas of China, but no apparent effect in other countries.
14. This effect is seen in OECD countries also. Schirle (2008) finds that increases in wives' participation in the labor force can explain one-fourth, one-half, and one-third of the increase in older married men's labor force participation in the United States, Canada, and the United Kingdom, respectively.

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# Aging and the Economy





# Aging and the Macroeconomy in East Asia and Pacific

3

## Introduction

A common concern about aging is its potential effect on economic growth and the fiscal position of rapidly aging countries. Although concerns about the effects of rapid aging on growth and government budgets should be taken seriously, the channels through which such effects may occur, at what scale they may occur, and over what time frames they may take place in countries at different stages of demographic transition are equally important considerations.

This chapter explores the possible channels through which aging in East Asia and Pacific may affect countries' growth and fiscal situations. The chapter begins with a brief description of aging and economic growth trends, using the broad typology of red, orange, and green economies introduced in chapter 1. It does not attempt to provide quantitative estimates of possible growth effects, but rather it explores the broad direction and intensity of effects and their interaction. The second section analyzes channels for augmenting the labor force to mitigate

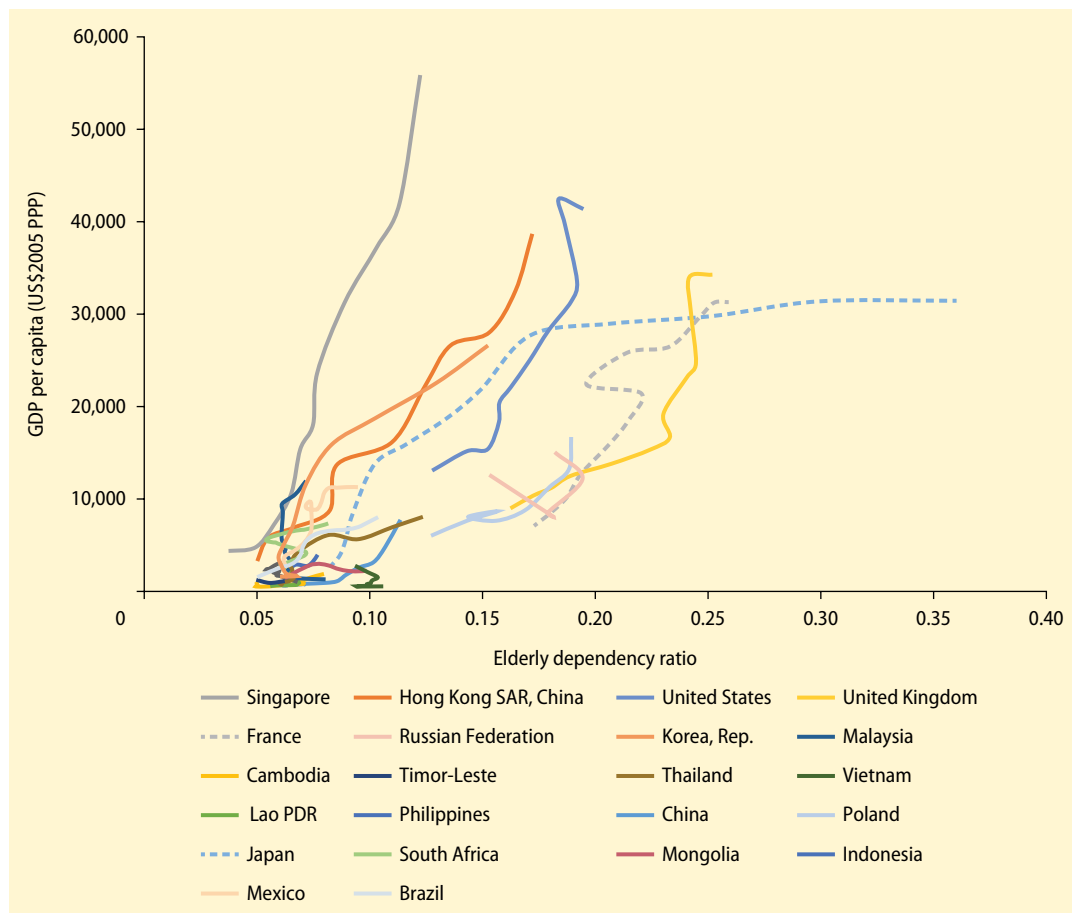
some of the potentially negative effects of aging and a shrinking working-age population, such as improving workforce quality and increasing the labor force participation of different groups. Because of the important role played by domestic savings in the high economic growth of East Asia and Pacific to date, the third section looks at how aging could affect household saving in the region. The fourth section then presents evidence on the projected fiscal effects of aging, emphasizing developing economies in East Asia and Pacific with rapidly aging populations to try to understand broad orders of magnitude and sources of fiscal pressure.

## Aging and growth in East Asia and Pacific

Developing economies of East Asia and Pacific are aging at historically low income levels compared with their richer neighbors, and many economies are getting old before getting rich. As figure 3.1 shows for 1980–2010, the orange and green economies have been aging—in some cases rapidly—at

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This chapter is based on a background paper by Thomas Flochel, Yuki Ikeda, Harry Moroz, and Nithin Umapathi (2014).

**FIGURE 3.1 East Asia and Pacific's developing economies are getting old before getting rich***Elderly dependency ratio and GDP per capita (2005 PPP), various economies, 1980–2010*

Sources: GDP data in 2005 US\$PPP for 1980 to 2010 from the World Bank's World Development Indicators database; elderly dependency ratios calculated as ratio of population over age 65 to population ages 15–64, using data from UN 2013.

Note: PPP = purchasing power parity.

much lower levels of gross domestic product (GDP) per capita than the red economies and those of countries in the Organisation for Economic Co-operation and Development (OECD) at similar stages of old-age dependency. The green economies, which are just beginning to undergo a demographic transition, have lingered in the bottom left-hand corner at low levels of per capita income and low elderly dependency. Early declines in youth dependency have even shifted some of them toward the left as the working-age share of the population began to rise. Economies in the orange and red groups have

generally migrated upward and to the right, but they have followed very different paths.<sup>1</sup> The orange group, where the turning point for dependency is either just past or not far away, is particularly heterogeneous. Malaysia experienced high growth, nearly tripling its GDP per capita with a still reasonably low ratio of elderly dependency, while Thailand's growth was accompanied by particularly rapid aging, with demographic ratios approaching one elderly for seven working-age adults. China has grown fast but from an even lower base; its rate of elderly dependency is not far behind Thailand's. What is



clear for this group is that they will not be able to reach the income levels of red economies at similar points of demographic transition. For example, Indonesia in 2010 had an elderly dependency ratio similar to that of the Republic of Korea in 1980, but with purchasing power parity per capita income around that of Korea in 1976 and output per worker equivalent to Korea's in 1969 (or around 15 percent of Korea's 2010 level of output per worker). At the high end of the spectrum, red economies have continued solid growth (though flattening in Japan) while doubling their rates of elderly dependency.

The contribution of favorable demographics to the region's growth performance in recent decades has been significant. Literature on East Asia and Pacific finds that up to one-third of the high per capita income growth in the region from 1960 to the 1990s can be attributed to the demographic dividend (Bloom, Canning, and Malaney 2000; Bloom, Canning, and Sevilla 2003; Bloom and Williamson 1998).<sup>2</sup> Other authors have estimated that demographic transition accounted for as much as 44 percent of growth in per capita incomes from 1960 to 1990 (Kelley and Schmidt 1995, 2005). Part of this effect is driven by rapid falls in fertility, which result in a large working-age share of population relative to youth share, thus raising per capita incomes. In the case of many East Asian countries, the pure demographic effect was positively compounded by improvements in educational attainment, capital investment, and other factors.

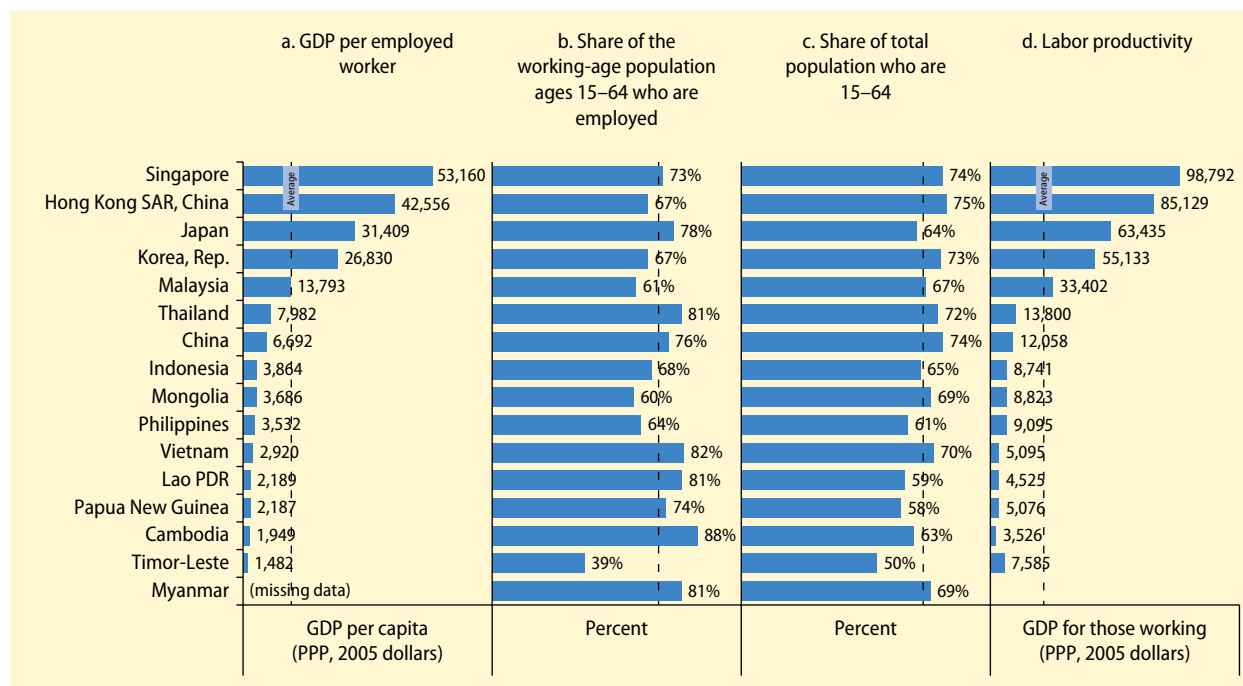
Although demographics have provided a clear tailwind for East Asian growth in recent decades (and will continue to do so in lower-income countries for some time), demographics are only part of the story. The effect of population aging on GDP per capita also depends on labor force participation and productivity, which in turn are affected by demographic forces. Figure 3.2 decomposes the channels through which aging influences per capita income and provides the framework for this chapter: the confluence of demographic, employment, and productivity factors determines how aging has and will

affect income per capita. Labor productivity interacts with aging in several ways. As the population ages, the net effect on GDP per capita is determined by labor productivity at each age. Evidence suggests that age and individual productivity are correlated, but the relationship is complex and depends on the relative endowments of human and physical capital workers are equipped with. The current cohort of elderly in East Asia and Pacific is far more productive than the previous cohort at any given age, particularly in countries where education and health have improved rapidly. More healthy and better educated, the elderly are increasingly able to develop skills as they age. Labor participation rates and productivity at each age are also affected by the two drivers of aging—lower fertility and extended longevity—through effects on economic behavior and on physical and human capital accumulation. From a public policy perspective, demographics may be a given, but labor participation and productivity are not. The size of the economic bonus or burden that results from population aging depends on how policy influences labor force participation, saving, human capital accumulation, and total factor productivity.

### Channels to augment the labor force

Although the share of working-age population will experience significant declines in red and some orange economies over the coming decades, significant potential exists to augment the labor force in these countries through different channels. The potential channels through which aging may affect growth include labor force effects, impacts on saving and investment, indirect impacts of rising fiscal obligations, and productivity. One body of literature seeks to unpick these disparate effects for East Asia and Pacific and other parts of the world. The most pessimistic estimates of the impact of aging on growth in East Asia and Pacific (typically using basic growth accounting models) assume unchanged labor force participation rates, retirement behavior, population health,

**FIGURE 3.2** Aging's influence on GDP per capita is the product of the employment rate, the working-age share of the population, and GDP per employed worker



Sources: World Bank estimates using population data from UN 2013, GDP per capita in 2005 US\$PPP from the World Bank's World Development Indicators database, and employment data from ILO 2011.

Note: PPP = purchasing power parity.

and migration patterns as populations age.<sup>3</sup> Yet each of these factors depends on behavior that is likely to change—or that with a supportive policy environment has the potential to change—in ways that mitigate the mechanical and largely unavoidable effect of shrinking working-age population. Such estimates may thus be considered to reflect a “no-change” scenario and in that sense are useful indicators of the importance of policy reform to stimulate behavioral change. A countervailing strand of research is far more sanguine about the growth effects of aging in East Asia and Pacific but is underpinned by optimistic assumptions about the ease of policy change and the degree of behavioral response to policy.

If we look at recent decades, important gender differences in participation trends indicate the past and potential future contribution of raising female labor force

participation as a mitigating measure in the face of rapid aging. First, as of 2010 a large gap remained in male and female participation levels in a number of the region's countries, which suggests potential for higher participation among women. Second, the figures demonstrate how men's and women's participation rates have been moving in different directions over time. For most countries in the region, male labor force participation rates have declined notably, with some countries such as Japan showing a decline close to 15 percentage points. In comparison, female labor force participation rates have increased despite aging, which implies that in several countries, such as Korea, Malaysia, and Singapore, participation rates have been able to partially counteract the demographic effect on female labor supply. This is not the case in China and Japan, where age-specific participation rates for women did not

rise as much. The evidence suggests, however, that medium-term convergence toward fuller use of a given working-age population is possible. Policies to increase female labor force participation and outcomes to date in East Asia and Pacific are discussed in chapter 4 of this report.

A second channel for augmenting labor forces is extending productive working lives of older workers. As shown in chapter 2 of this report, people in East Asia and Pacific work until fairly advanced ages already, with notable exceptions in urban areas of some middle-income countries. Many rural people continue to work well into older age out of necessity, not infrequently even when in poor health. Among richer economies of the region, Japan and Korea have the highest effective retirement age among OECD countries where, on average, people retire later than pensionable age (D’Addio, Keese, and Whitehouse 2010). Presumably, therefore, this channel for enhancing labor force participation would seem more constrained than in other regions. However, certain countries—crucially China and Vietnam—have significant potential to increase productive working lives of urban people and mitigate the impacts of aging. The risk also exists that growth, urbanization, and expansion of social security systems in middle- and lower-income countries of East Asia and Pacific will see current rural workers increasingly adopt the retirement behavior of urban workers, which would result in significant downward shifts in average participation rates at older ages in most countries of the region. That downside risk is considerable in the absence of further reform of pension systems. Chapter 4 of this report discusses regional and global experience with policies to extend active working lives.

The potential for higher employment at older ages is influenced by gains in life expectancy and, especially, by gains in healthy years (Eggleson and Fuchs 2012). Bloom, Canning, and Moore (2004) show that theoretically healthier life expectancies will extend working lives but that improvements tend to increase less than proportionately

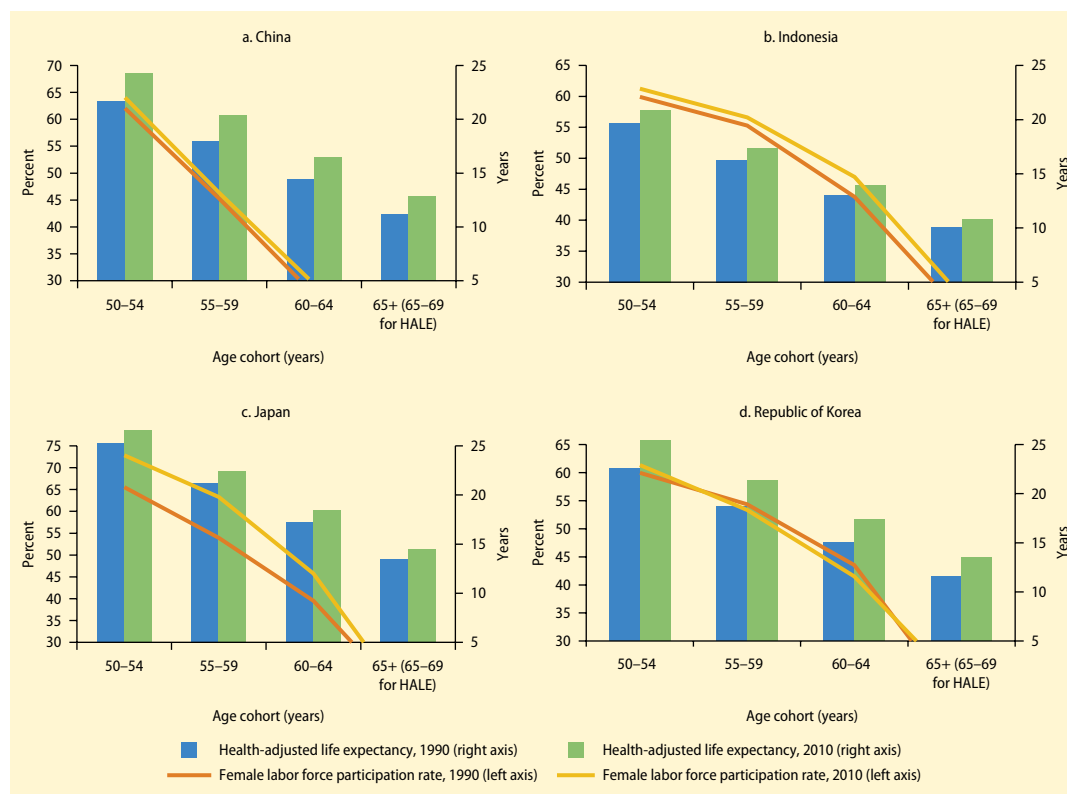
because of the income effect. According to figure 3.3, relative trends in labor force participation rates and gains in health-adjusted life expectancy years suggest the increasing potential for extending working lives in East Asia and Pacific, particularly among women. For example, on average, Japanese men and women at ages 55–59 in 2010 could expect to live 1.4 and 1.2 extra years, respectively, compared with 1990. This “longevity dividend” is not gender neutral: since 1990, improvements in health-adjusted life expectancy in the region have increased participation by women in China, Japan, and Indonesia.

Apart from effects on quality of the labor force (see below), rising educational attainment across East Asia and Pacific can be expected to play a role in promoting higher labor force participation across ages and genders through two channels. First, higher educational attainment increases incentives to work in better-paid employment. Second, studies find that more education is associated with better health outcomes and lower mortality, thereby improving the ability and willingness of older people to participate in the labor force (Burtless 2013; Cutler and Lleras-Muney 2008). According to this logic, the regional education projections to 2040 imply that labor force participation, especially at middle and older ages, should be expected to expand. Overall, as long as an increasing share of the population is better educated and successive cohorts supplant the less-educated generations, labor participation rates are expected to grow—especially among the older population for whom the participation rate tends to be lower.

In East Asian countries with aging populations, immigration of younger workers from other countries can help lift labor force participation rates. Migration can provide a certain level of relief, especially in the short term, in the labor markets of countries with aging populations suffering from labor shortages. Migrants, on average, tend to be younger and exhibit higher rates of participation relative to natives. Two features distinguish East Asia and Pacific.

**FIGURE 3.3 Older women in East Asia and Pacific will be able to work later in life by virtue of rising health-adjusted longevity**

*Percentage of women in the labor force and healthy years of life expectancy by age between 1990 and 2010, various countries*



Sources: World Bank calculations based on IHME and World Bank 2013 and ILO 2011.

Note: HALE = health-adjusted life expectancy.

First, significant variation exists in terms of demographic transitions. Thus, migration of young workers from countries with a younger workforce would benefit aging host countries now and the lower-income sending countries in the future by easing the aging challenge in both (“chronological arbitrage”). Second, some of the intensely aging countries in the region are marked by very low rates of immigration. For example, in Japan and Korea only 1 to 2 percent of the population is international migrant stock (Özden and Testaverde 2014; World Bank 2013d). This low base effect presents a significant opportunity if inflows of new migrants ages 25–35 can be raised to 10 percent of the labor force that age (that is,

about the long-run levels of the United States and a number of western European countries). However, the low base effect also indicates sociocultural, linguistic, and political barriers to immigration that may be more difficult to overcome. In contrast, Hong Kong SAR, China, and Singapore stand out with high international migrant stocks that make up about 40 percent of the total population.

The policy changes required will be politically challenging and require significant behavioral change on the part of workers, employers, and society more broadly. Migration is an unusually sensitive issue in potential host countries in East Asia and Pacific, and the historical record is modest

in some regional countries most affected by aging.<sup>4</sup> Increasing participation of older workers will require reforms of social security systems and labor policies, which have proven politically difficult in many countries, though recent reforms in some East Asian countries provide encouragement. And increasing female labor force participation will require incremental investments in child care and other programs as well as overcoming inertia and long-held social attitudes to the role of women in society once they have had children. These issues are discussed in chapters 4 and 5 of this report.

### Labor force quality and productivity

Just as important as mitigating *quantity* of workforce declines will be efforts to enhance worker *quality*. Better-educated people are more prepared for lifelong learning, healthier, and more productive. On this front, as shown in tables 3.1 and 3.2, East and Southeast Asia have a positive starting point in terms of the massive expansion in secondary and higher education in recent decades, which will flow through into the labor force in coming decades. At all income levels, each generation of future East and Southeast Asian workers will be significantly more educated than the last. The second trend is that the educational gap between older and younger workers is expected to diminish considerably in China, Indonesia, Malaysia, the Philippines, and Thailand—and even disappear in countries such as Korea. Although productivity differences may persist because of age-specific factors, intergenerational inequality of educational attainment is going to diminish significantly. This outcome implies improving prospects for employment at older ages.

Several studies find that significant increases in human capital such as those experienced in East Asia and Pacific may be sufficient to offset the effects of population aging on aggregate productivity. Bloom, Prettner, and Strulik (2013) show that under plausible production function specifications,

**TABLE 3.1 The educational attainment of future generations in East Asia and Pacific will be considerably higher than for the current working-age population (secondary and above)**

*Percentage of population ages 20–64 with secondary or higher education, 1990, 2030, and 2040*

Economy	1990	2030	2040
Hong Kong SAR, China	72.5	89.4	88.9
Japan	99.9	100.0	100.0
Korea, Rep.	74.6	99.5	99.8
Singapore	63.3	90.3	92.5
China	48.5	83.7	89.7
Indonesia	31.6	72.3	79.2
Malaysia	50.4	89.9	93.0
Mongolia	75.8	91.4	92.3
Thailand	20.8	65.6	75.7
Vietnam	24.2	49.1	56.9
Cambodia	16.2	45.2	52.7
Lao PDR	17.8	48.5	56.3
Myanmar	27.6	58.2	65.9
Philippines	52.7	84.0	88.3

Source: World Bank calculations based on data from World Population Program, International Institute for Applied Systems Analysis, <http://www.iiasa.ac.at/web/home/research/researchPrograms/WorldPopulation/Introduction.html>.

**TABLE 3.2 The educational attainment of future generations in East Asia and Pacific will be considerably higher than for the current working-age population (tertiary)**

*Share of population ages 20–64 years old with tertiary education in 1990, 2030, and 2040*

Economy	1990	2030	2040
Hong Kong SAR, China	15.9	34.0	35.7
Japan	23.5	55.2	60.5
Korea, Rep.	15.6	49.7	55.6
Singapore	15.1	50.2	55.2
China	3.1	11.5	14.7
Indonesia	4.2	15.3	18.7
Malaysia	5.7	26.9	32.4
Mongolia	20.1	30.5	35.1
Thailand	6.8	27.6	33.9
Vietnam	3.0	9.3	12.1
Cambodia	0.5	3.3	4.3
Lao PDR	5.0	19.0	22.3
Myanmar	3.4	12.7	15.6
Philippines	15.4	37.4	42.9

Source: World Bank calculations based on data from World Population Program, International Institute for Applied Systems Analysis, <http://www.iiasa.ac.at/web/home/research/researchPrograms/WorldPopulation/Introduction.html>.

the rise in education and health investments that is in part spurred by declines in fertility rates raises workers' productivity enough to compensate for declines in labor supply. And according to Lee and Mason (2010), the effect of spending on education is strong enough to offset the adverse effects of population aging. Significant increases in education levels will be particularly important sources of growth in aging orange economies where the levels in 1990 were low. For red economies, where the educational gap across cohorts of workers is narrower, other forms of lifelong education and retraining of older workers that are not reflected in tables 3.1 and 3.2 deserve further attention (see box 3.1).

Falling fertility rates are usually associated with greater parental investments in education and health of children, but translating these investments into productivity growth requires investments in the quality of education. Becker and Lewis (1973) and Willis (1973) first described the quality-quantity trade-off that occurs as parents have fewer children and they invest more in the human capital of each child. A 10 percent increase in

the share of students achieving basic literacy has been estimated to translate into an annual growth rate that is 0.3 percentage points higher than it would otherwise be for that country (Hanushek and Woessmann 2009). Although red economies are in a strong position in terms of educational attainment and skills, some orange economies and many green economies are still far from par. OECD (2012) PISA (Programme for International Student Assessment) results show that parts of the East Asian region outperform the world. Hong Kong SAR and Shanghai, China; Japan; Korea; and Singapore are above the OECD average, and Vietnam's performance—with 15-year-olds performing on a par with those in Germany and Austria—is exceptional. But other orange economies, such as Indonesia, Malaysia, and Thailand, lag the OECD average. Furthermore, according to the Program for International Assessment of Adult Competencies, which measures capacity for retraining and adaptation among adults, Japan leads globally, with Korea close to the OECD average. More alarming is the state of adult skills and competencies in green economies, such as the Lao People's

### BOX 3.1 The scope for improving skills of an aging workforce

A commonly held belief is that the ability to learn new skills declines with age. In particular, Baltes, Lindenberger, and Staudinger (2006) find that the speed at which an individual processes new information declines from 25 years of age onward. *Cognitive plasticity*, the ability to learn, appears to follow an inverted U shape over an individual's lifetime. Should we then conclude that older workers cannot be retrained to renew their skills if theirs become obsolete?

Recent research nuances the conventional wisdom. First, because successive cohorts are healthier and more educated, their brains function better. This phenomenon, known as the Flynn effect, suggests that testing a cross-section of elderly people at one point in time ignores improvements across cohorts. Because cognitive plasticity rises with each cohort, future

older workers should not be judged by the learning abilities of the current elderly population. Second, because healthy life expectancy is increasing, cognitive decline is found to start later in life. Skirbekk et al. (2013) conclude that the cognitive plasticity curve is shifted not only up, but also outward: individuals are more able to learn at each age, and decline occurs increasingly late in life. Third, scientific evidence shows that the decline is not deterministic and the elderly's ability to learn improves given the right circumstances. Physical exercise has been found to revitalize key parts of the brain that improve learning abilities (Christensen et al. 1997; Voelcker-Rehage, Godde, and Staudinger 2011), and learning outcomes among the elderly are particularly responsive to motivational factors and supportive attitudes in the workplace (Kessler and Staudinger 2007).

Democratic Republic (World Bank 2013c) and Timor-Leste (World Bank 2013b), which have scored very low on core literacy tests as part of the World Bank's STEP (Skills Toward Employability and Productivity) skills measurement program.

Severe child health and nutrition problems in some green economies could seriously curtail the demographic dividend. Several green economies have some of the highest rates of stunting in the world, with up to 44 percent of children below age 5 being stunted (figure 3.4). Children who are stunted are more likely to have lower cognitive abilities. Key parts of the brain develop less in children who are severely malnourished, making these children much less likely to attend school or more likely to drop out early. Compared with nonstunted children, stunted children score 7 percent lower on math tests, are 19 percent less likely to be able to read a simple sentence at age 8, are 12 percent less likely to be able to write a simple sentence, and are 13 percent less likely to be in the appropriate grade for age at school.

A second important question on which evidence is encouraging but inconclusive is how a falling share of "prime working-age" population in red and a number of orange economies could affect productivity. How individual productivity varies with age is a challenging empirical question that has important implications for aggregate productivity, particularly in advanced economies where the workforce is aging and shrinking. Population aging has implications for growth not only through its direct effect on workers' labor productivity as they age, but also through its effect on capital accumulation, total factor productivity, and innovation. Empirical evidence on this question is mixed and limited in East Asia and Pacific but, in general, provides some grounds for encouragement.

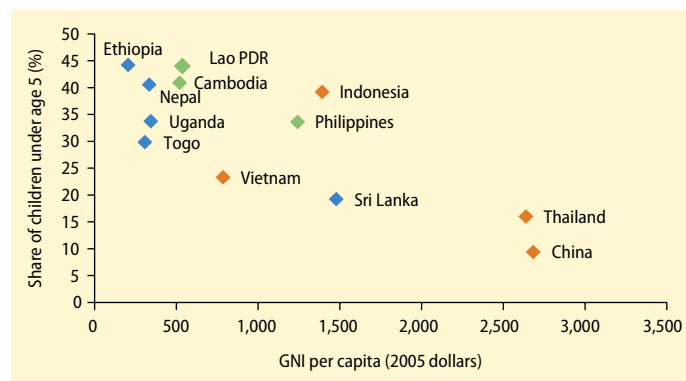
Empirical evidence from Japan and other aging countries suggests that the age-productivity profile of workers follows an inverted U shape, with a mild decline after the mid-40s and a significant dip only after age 65 (box 3.2). Estimates of age-productivity

profiles that emerge from industry or firm-level empirical research in Japan have consistently found productivity to follow an inverted U shape with respect to age, peaking for employees at about 20 years of experience, which corresponds to an age of 40 to 46 years (Ochiai 2008; Shirakawa 2010). But productivity does not seem to fall rapidly after that. In fact, research from Japan finds that the labor productivity of the 55–59 age group is virtually identical to that of the 40–44 age group (Murphy and Welch 1990). Evidence from Europe points to similar findings. In Austria and Sweden, for example, at worst, no evidence of age-related productivity decline is found (Göbel and Zwick 2013; Malmberg, Lindh, and Halvarsson 2008).

In red economies, past trends in the age distribution of the population have been particularly propitious to workforce productivity growth, but their reversing trends do not necessarily imply dramatic reductions in productivity. A higher share of prime-age individuals in the population, sometimes defined as the 30–54 age groups, has been found to be significantly associated with high productivity growth (Gómez and de Cos 2008).<sup>5</sup> From the mid-1960s to the mid-2000s, the share of those ages 35–54 rose and peaked at a ratio

**FIGURE 3.4** Prevalence of stunting among children under age five could undermine investments in education and affect cognitive skills in East Asian and Pacific economies of the green group

*Percentage of children under five who are stunted and GNI per capita (2005 dollars), selected countries*



Source: World Health Organization, Global Database on Child Growth and Malnutrition.  
Note: GNI = gross national income.



### BOX 3.2 A labor productivity paradox?

Evidence on the relative productivity of older workers that emerges from empirical research in advanced economies is somewhat contradictory. While the productivity-age profile is robustly found to follow an inverted U shape, with the peak age somewhere between 35 and 54, macro estimates of the effect of age on aggregate productivity find that older workforces are at worst as productive as younger workforces.

Several possible explanations exist. First, individual worker productivity does not dramatically decline after it peaks around age 40. The decline is found to be very mild relative to the rise in productivity in the first 20 years of work experience in various studies in Japan (Fukao et al. 2006; Shinada 2011). In a famous study of BMW, Börsch-Supan and Weiss (2008) also find that productivity does not begin to decline until age 60. Among Organisation for Economic Co-operation and Development countries, the share of those ages 50–64 was found to have a positive influence on growth, while a higher share of those 65 and older contributed negatively (Lindh and Malmberg 1999). Second, as noted previously, some issues with the research methodology may bias the results. The decision to retire or retain a worker as he or she ages likely depends on the worker's productivity. It follows that when measuring the productivity of older workers, only those elderly workers with "high enough" productivity can be surveyed, whereas this selection effect is much less present among younger workers.

Third, the link between age and productivity is also highly dependent on the context and task under consideration. In general, productivity reductions at older ages are strongest in job tasks where problem solving, learning, and speed are important ("fluid" abilities), whereas for work tasks where experience

and verbal abilities matter more ("crystallized" abilities), less or no reduction in productivity occurs among elderly workers (Skirbekk 2008). Findings also appear to differ depending on the measure of productivity used and even using same approach. Thus, supervisor assessment studies have found no clear effect of age on productivity (McEvoy and Cascio's [1989] review of 96 studies) while others using quantity and quality of output measures have found lower productivity of older workers. Matched employer-employee surveys show mixed results across studies and specific measures of productivity.

But some surprising results have emerged from the research. Older workers who remain in the labor force despite technological changes that affect their job content are found to have adapted well, experiencing greater growth in tasks with intense use of cognitive abilities (Romeu Gordo and Skirbekk 2013, following a line of research initiated by Autor 2003). Focusing on the distinction between mental and physical productivity, Van Ours (2009) finds that although the latter declines after age 40, the former does not. Similarly, perhaps counter to popular opinion, studies have found lower absenteeism (Martocchio 1989) and fewer job shifts among older workers than younger ones, perhaps saving on training costs (AARP 2002). The most recent studies provide a generally more upbeat assessment of older-worker productivity (Bloom and Sousa-Poza 2013).

Finally, productivity is not only an individual but also a team concept, and evidence indicates that skills of the old and the young may be complementary in some contexts. Grund and Westergaard-Nielsen (2008) find that those companies with workers of mixed ages are actually more profitable than those with exclusively young or old workers.

of one in three people on average in the red economies before declining again (figure 3.5). Other things being equal, the workforce in these countries could be expected to experience a steady decline in labor productivity as it ages rapidly in the next 30 years and prime age groups are less represented. However, all things will not be equal. To begin with, the

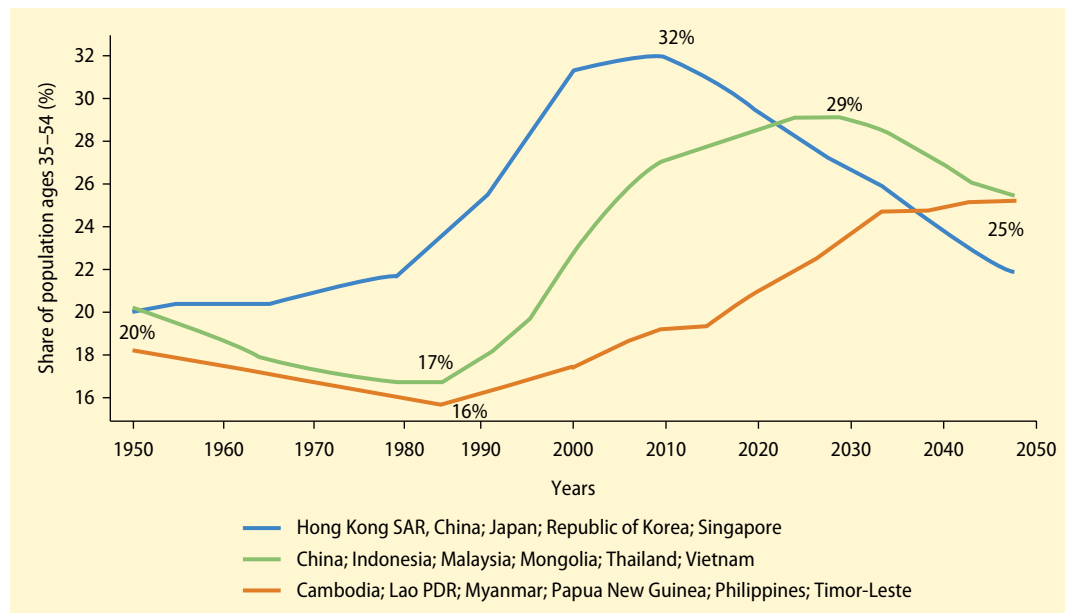
cross-sectional evidence ignores cohort effects that drive a worker age 60 today to be both more productive and more able to acquire new skills than a worker of the same age three decades earlier.

In orange and green economies, the maturing of the population offers increasing opportunities for productivity growth,



**FIGURE 3.5** Productivity depends on the age distribution of the population, but mitigation channels exist

Share of population ages 35–54, 1950–2050



Source: World Bank calculations based on UN 2013 data.

yet the pace of growth will depend on physical and human capital investments and how efficiently they are put to use. The next 15–20 years will see a rise in the average share of the prime-age population of orange economies, although a flatter rise than that experienced in the 30 years since 1985. Green economies should experience some positive growth in labor productivity from the maturing of their workforce, peaking around 2045. Yet although the age-productivity profile is the most obvious link between population aging and labor productivity, aggregate productivity growth in the future will be determined by investments in human capital and the quality of education. Saving behavior and the types of saving mechanisms available to households will also have a role, as will the capacity of the economy to make efficient use of these human and physical inputs. The next section focuses on the saving channel and aging.

One feature that appears to decline with age of the workforce globally is

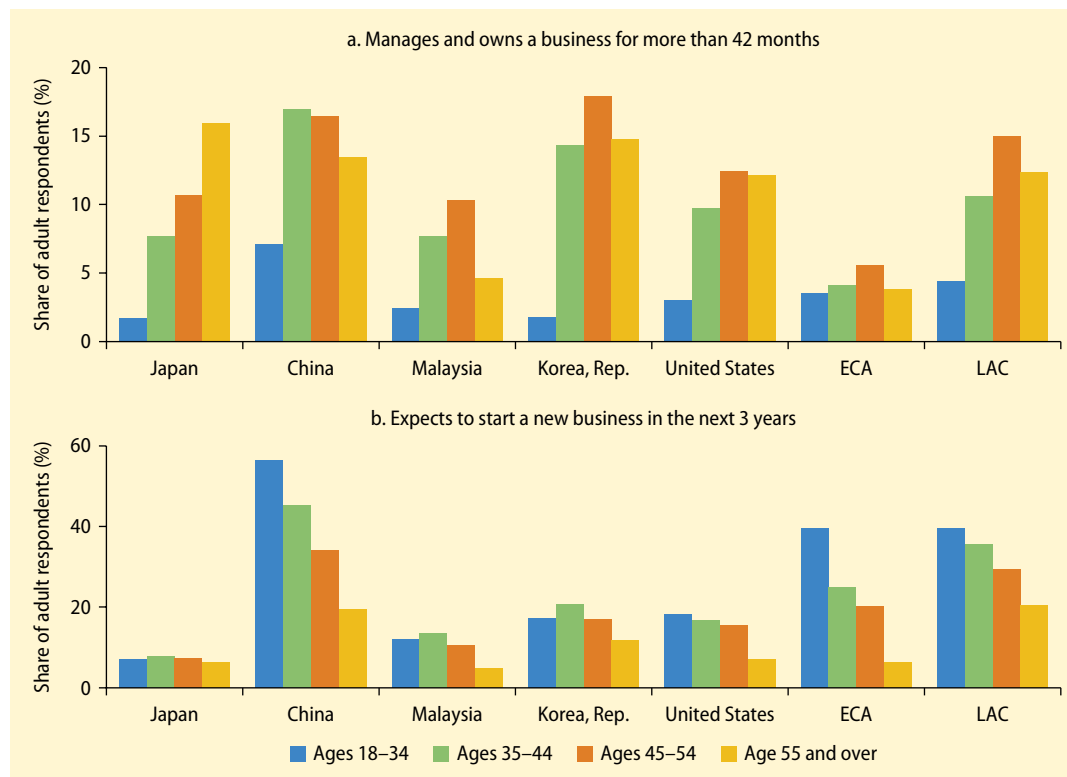
entrepreneurship, which is of particular concern in countries seeking to promote innovation. Figure 3.6 shows the share of workers by age who manage and own a business and those who expect to launch a start-up business in the coming three years. Nonetheless, China, Japan, and Korea have relatively high ownership of businesses among older workers, and Japan is distinctive in that this increases as a share with age.

### Saving in East Asia and Pacific: Will aging play an influential role?

The net effect of aging on labor productivity depends in part on the capital stock and how capital accumulation evolves with population aging.<sup>6</sup> The concerns over saving in East Asian countries with aging populations reflect the important role played by domestic savings in the high growth of the region to date. Savings not only fund investment but also allow lower-income

**FIGURE 3.6** Although in many countries, entrepreneurship seems to decline with worker age, business ownership in East Asian countries is significant among older workers

*Adults who own a business and engaged in start-up activities, by age, selected areas*



Source: Global Entrepreneurship Monitor 2011.

Note: ECA = Eastern Europe and Central Asia; LAC = Latin America and the Caribbean.

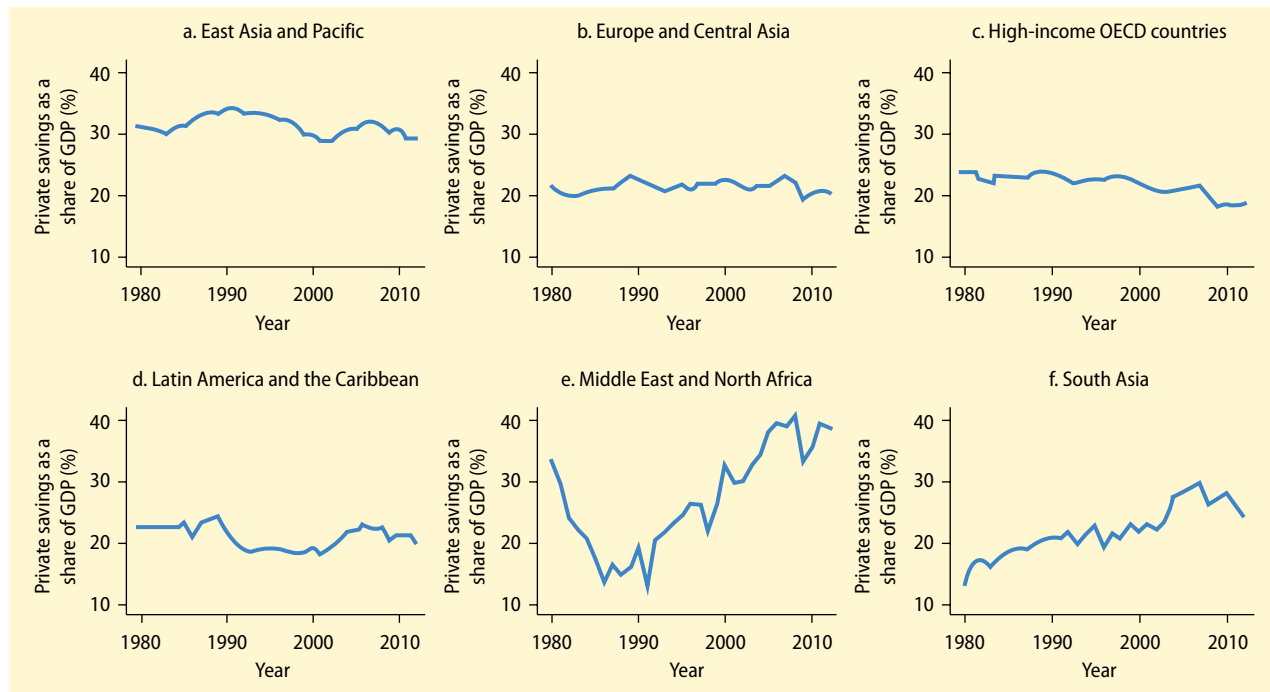
countries to adopt more advanced technologies, which matters enormously for growth. Aging may affect supply and demand for household savings, potentially corporate savings, and almost certainly government savings because of the effects of age-related public spending. On the demand side, one important channel through which changing demographics affect growth is increases in labor productivity. A decrease in the size of the labor force in aging economies leads to an increase in capital intensity (or the capital-to-labor ratio), thus increasing labor productivity. Such capital deepening and consequent increase in productivity leads to higher standards of living, even in the absence of higher savings (Lee and Mason

2011). It could possibly even accelerate productivity growth and thus mitigate the effects of a shrinking labor force. However, as dependency ratios stabilize, the supply channels discussed below ultimately determine the magnitude of long-term productivity and growth rates.

Household saving in much of East Asia is high and provides a robust base as the region ages. In East Asian economies, the average private savings rate between 1960 and 2000 was 25 percent—exceeding those of most other regions. China has accounted for the predominant share of this impressive increase since the 1960s (figure 3.7). That said, domestic savings across the region vary substantially: from 1966 to 2007, the savings rate ranged

**FIGURE 3.7** Compared with household savings rates in other regions, the rate in East Asia and Pacific is relatively high and stable

*Private savings as a percentage of GDP by region, 1980–2010*



Source: World Bank's World Development Indicators database.

Note: OECD = Organisation for Economic Co-operation and Development.

from well over 30 percent in China; Hong Kong SAR, China; Malaysia; and Singapore to below 20 percent in the Philippines and Vietnam (Horioka and Terada-Hagiwara 2012). Although household saving has fluctuated considerably, corporate saving has been on a steady upward trajectory since 2001.

The demographic effect on the savings rate is difficult to predict because the different demographic transformations driving population aging will have ambiguous effects on the savings rate.<sup>7</sup> Two offsetting effects determine the net effect of longevity on aggregate saving: a *compositional effect* that leads to a reduced aggregate savings rate because of an increase in the share of older people in the adult population; and *behavioral effects*, such as the rise in the individual savings rate to finance a longer

expected duration of consumption in retirement. Predictions on which of these two effects will dominate in East Asia and Pacific are mixed. Some authors suggest the compositional effect will dominate the behavioral effect; others maintain that extensions in longevity will positively affect savings rates in the future, while others find mixed effects (see below). On balance, the studies suggest less cause for concern in East Asia and Pacific than in other parts of the world.

Whether aging in East Asia and Pacific will adversely affect savings growth prospects depends on three regional characteristics. First are the patterns of life-cycle profiles of savings, which affect the scale of the compositional effect as the population age distribution changes. Second are the adjustments to saving behaviors in response to lower fertility

and increased longevity. Third is improving efficiency in saving associated with social security and the increasing quality of financial markets.

Predictions regarding the impact of aging on household saving in East Asia and Pacific are mixed but on balance suggest less cause for concern than in other parts of the world. Under the life-cycle savings hypothesis (LCH) (Modigliani 1970), demographic factors are important determinants of savings rates, though evidence from East Asia and Pacific is mixed. According to the LCH model of saving, people save when young and dissave to finance consumption during retirement. From a macroeconomic perspective, the life-cycle theory implies a decrease in the national savings rate in an aging economy<sup>8</sup> because the share of retirees in the adult population increases. Empirical evidence on saving is broadly consistent with the main predictions of the life-cycle theory (Browning and Crossley 2001). Loyaza, Schmidt-Hebbel, and Servén (2000) find that these factors are important determinants of cross-country differences in savings rates of developing countries while Bloom et al. (2007) report the same finding for a cross-country panel of data for 1960 to 2000. Attanasio and Székely (2000) find that household saving is consistent with the LCH in Mexico, Peru, and Thailand, but only for the most educated households. Evidence for Japan from both macro- and microstudies is consistent with the LCH.<sup>9</sup> The retired elderly as well as the working elderly dissave in Japan.

Overall, however, the exceptional increase in savings rates in East Asia and Pacific is difficult to reconcile with the LCH. Demographic changes and income inequality between cohorts can explain only a small part of this trend. A singular feature of the East Asian saving surge during this period is an increase in the rate of saving at *every age*.<sup>10</sup> This finding is inconsistent with the standard life-cycle theory. Schultz (2004), for instance, finds that changing age structure across 16 Asian countries from 1952 to 1992 had an insignificant impact

on aggregate savings rates. An analysis of profiles of life-cycle income and consumption flows using National Transfer Accounts across China, Korea, Thailand, and Vietnam also suggests that for the wider region, consumption profiles remain essentially flat from around age 20, whereas labor income continues to be positive at older ages.<sup>11</sup> China shows both a relatively flat saving profile by age in adulthood (indeed, a higher savings rate from the late 40s than for those in prime age) and an increase in saving at all ages over time. A stronger bequest motive, incomplete coverage of public pensions, and shallow financial protection from health insurance in East Asia and Pacific appear important in reconciling this pattern. All in all, the compositional effect of aging on saving to date appears to have been more muted than in other regions.

A number of behavioral factors can potentially mitigate the adverse impact of aging on household saving in East Asia and Pacific, thus making the potential impact on aggregate saving more modest. As discussed, declining fertility is associated with higher female labor force participation, which implies higher national saving because of the income growth of a larger female labor force. Increased life expectancy can also lead to increased working lives and increased saving to fund retirement. Bloom, Canning, and Sevilla (2003) incorporate longevity in a standard life-cycle model of saving and show that, under certain assumptions, longevity leads to higher savings rates at every age. Their model fits the evidence from East Asia and Pacific well. However, the effect of longevity on aggregate savings is transitory and dissipates as the population ages. They thus conclude that the positive effect of increases in life expectancy on saving in East Asia and Pacific will dissolve as the population ages. Kinugasa and Mason (2007) have a more optimistic view. Their model of saving incorporates declines in youth dependency as well as increases in life expectancy and fits the saving trends in East Asian countries. They find that the increase in life expectancy is the more important determinant of savings,

accounting for three-fourths of the increase in Asia. Moreover, their analysis predicts that the behavioral effect of longevity increases outweighs the compositional effect, implying that population aging will not lower saving in Asia. Using cross-country panel data, Li, Zhang, and Zhang (2007) find that the effect of increased longevity on aggregate savings is positive whereas that of an increased old-age dependency rate is negative. World Bank (2013a) also argues that the drag on saving from the compositional effect will be offset by the behavioral effect in East Asia and Pacific.

The concern about reduced household saving induced by aging in East Asia and Pacific may thus be overstated because broader macroeconomic channels are likely to play a dominating role. First, a precautionary motive appears to be driving high saving in East Asia and Pacific, suggesting important inefficiencies despite high national rates of saving. Second, further financial liberalization may contribute to a decline in the savings rate, which will be a sign of improved efficiency. Finally, improvements in financial intermediation, inclusion, and social security coverage will play a crucial role in determining levels of saving and in channeling savings into productive investment.

A precautionary motive appears to be driving high household and corporate saving in East Asia and Pacific, suggesting inefficiencies that, if reduced, would allow stronger economic effects from a given rate of saving. Blanchard and Giavazzi (2005) stress the importance of reducing precautionary saving to boost consumption and rebalance growth. In China, market-oriented reforms led to large-scale corporate restructuring and downsizing of the public sector between 1995 and 2005, consequently weakening the public social safety net. Households responded by building up savings to self-insure against future health and old-age income needs (Chamon and Prasad 2010; Ma and Yi 2010). Therefore, even if savings rates decline in future, the aging effect means the impact on growth may not

be too negative because the precautionary motive suggests efficiency gains can be made by shifting to lower levels but higher quality of saving: for example, by expanding social insurance. A precautionary motive also appears to explain the high corporate savings rate in China. In the future, policies decreasing income volatility can also lessen the need for inefficient precautionary saving by firms. An increase in the variance of permanent income shocks implies not only a higher savings rate but also a change in the portfolio allocation of savings toward safe assets and a decrease in investment (Cherif and Hasanov 2012). Conversely, International Monetary Fund (IMF) analysis of the impact of financial liberalization on corporate saving globally reveals that financial reforms may have a considerably larger effect in Asia (IMF 2009). This evidence suggests that financial sector reforms are likely to reduce precautionary saving by the corporate sector in Asia. In fact, recent policy changes indicate that many middle-income countries in East Asia and Pacific are already moving in this direction.

Improvements in financial inclusion will play an important role for channeling household savings into productive investment. Greater financial inclusion, either through bank or nonbank financial institutions, allows for efficient flow of savings and investments in the economy (Levine 2003; Levine, Loayza, and Beck 2000). At the household level, bank account penetration differs across countries in East Asia and Pacific. With a rate of 55 percent, East Asia and Pacific is ahead of most regions in bank account penetration and only behind high-income economies, yet access to personal saving instruments and credit varies significantly across countries. According to Demirgüç-Kunt and Klapper (2012), in countries such as Cambodia more than 95 percent of adults do not have an account at a formal financial institution. In sum, these regional stylized facts reflect that, aging pressures notwithstanding, East Asian and Pacific countries have varying abilities to mobilize savings, allocate capital efficiently,

and diversify risks, which suggests that significant gains remain to be made.

### Fiscal effects of aging

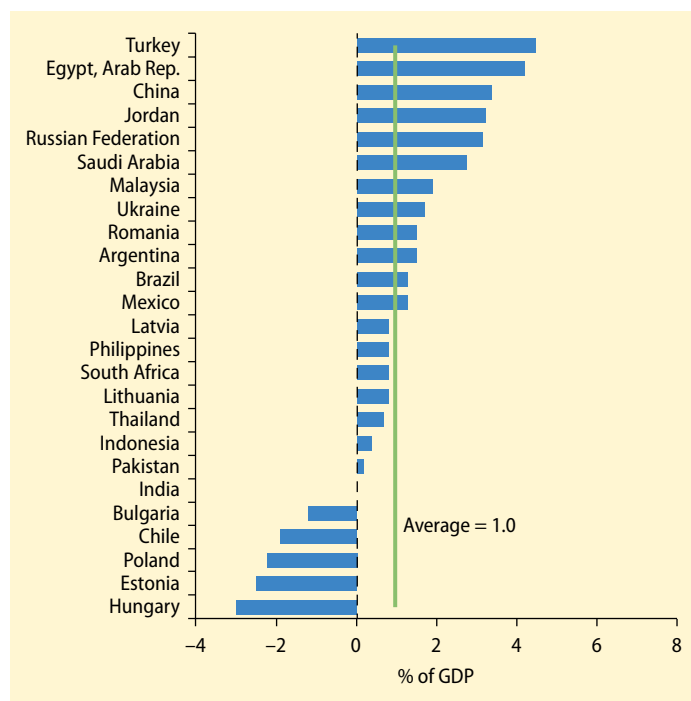
The biggest risk to aggregate savings rates in East Asia and Pacific will be through the impact on government saving caused by rising pension, health, and long-term care spending. This risk is of particular concern in developing East Asian and Pacific countries where projected fiscal space is very limited (see Pradelli and Van Doorn 2015). Although reasons exist to be sanguine about the potential effects on household and corporate savings from aging, the same is not the case for government saving. Even assuming relatively benign effects of aging on economic growth in the region, major fiscal risks from aging remain that are already manifesting themselves in several

cases and that will require strong policy leadership to mitigate. As noted, the most obvious fiscal risks are posed by pension, health, and long-term care systems, all of which are affected by aging (see chapters 5 to 7 of this report for detailed discussion and summaries of country-specific expenditure projections). The fiscal risks are compounded in many East Asian and Pacific countries because governments are pursuing rapid coverage expansion of health insurance and pensions and exploring more active public financing for long-term care.

Various projections of pension spending in East Asia and Pacific reveal significant fiscal pressure from rising pension spending over coming decades. Various cross-country projections are available that include East Asia and Pacific, some country-specific and some more stylized around regional country groupings. Although estimated impacts cover a considerable range (and are important to supplement with more detailed country projections presented in chapter 5 of this report), they all point to the fiscal risk presented by pension systems in the region. In the following, we examine a few estimates.

**FIGURE 3.8** Projected increases in pension spending to 2030 point to a significant increase in China and Malaysia, with more modest increases for Indonesia, the Philippines, and Thailand

*Projected increase in pension spending as a percentage of GDP, 2010–30*



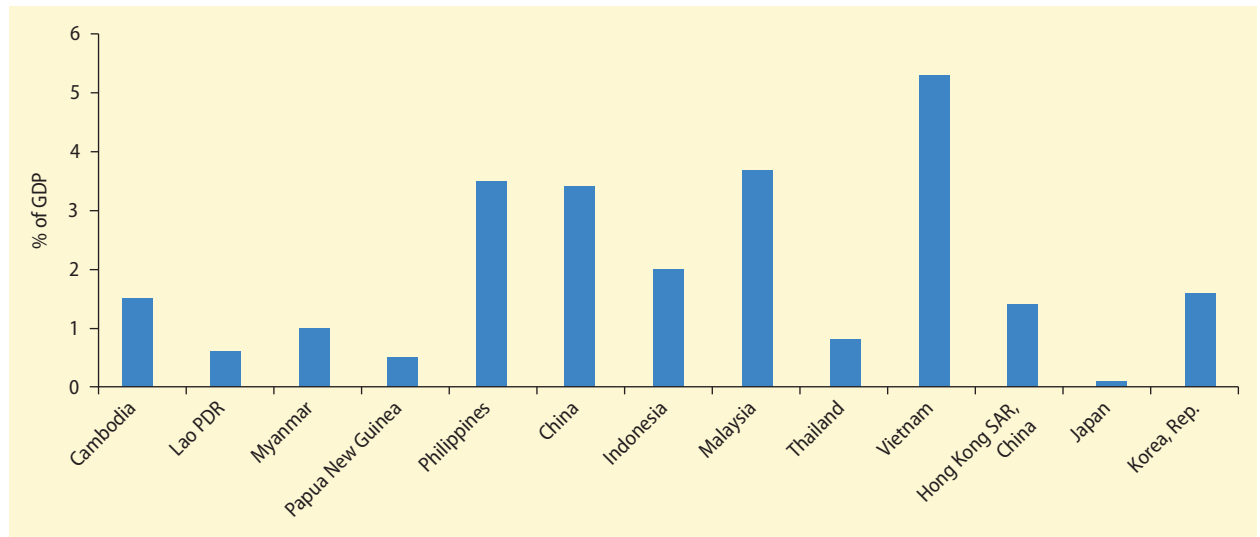
Source: IMF Fiscal Affairs Department 2010.

IMF projections with simplified but standard assumptions across countries (figure 3.8) point to a significant increase in pension spending in China and Malaysia, with more modest increases for Indonesia, the Philippines, and Thailand (although the projection for Indonesia does not take into account the new pension scheme). The increase in China of over 3 percent of GDP is particularly notable. Not shown in the figure, but available from the same source, are estimates for Japan and Korea. Japan exhibits a slight fall in pension spending as a share of GDP, reflecting its already aged population and cost-containment measures in its pension scheme (see chapter 5 in this report), whereas Korea experiences a significant increase in pension spending approaching 4.5 percent in the 2010–30 period, reflecting the maturation of its relatively young pension system and the continuation of rapid aging.

Simplified estimates of pension spending in 2050 done for this report (which incorporate

**FIGURE 3.9** Estimated increases in East and Southeast Asian pension spending for 2014 to 2050 find significant fiscal risks from pensions

*Projected increase in pension spending as a percentage of GDP, 2014–50, various economies*



Source: Pradelli and Van Doorn 2015.

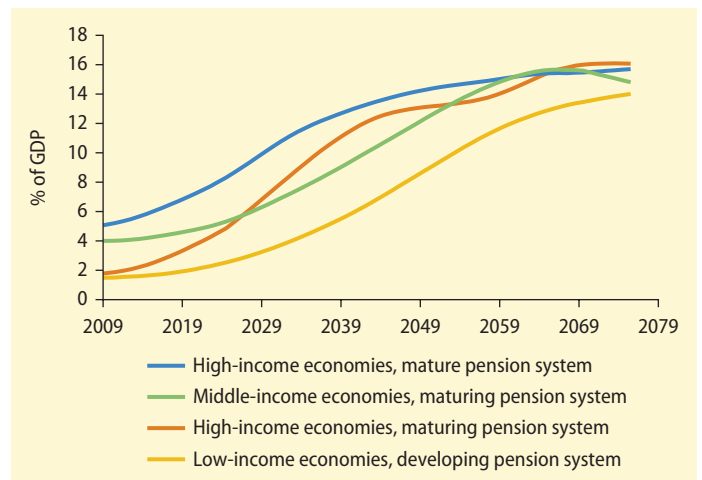
Note: Estimates assume stable debt-to-GDP ratios from 2013 and nominal GDP growth of 7 percent. Malaysia estimate includes spending from its provident fund.

debt dynamics) also find significant fiscal risks from pensions. China continues to have a substantial fiscal burden from pensions (similar in magnitude to the IMF estimate), while the incremental costs in Malaysia, the Philippines, and Vietnam are also substantial (figure 3.9).

A third estimation exercise uses a stylized approach to capture broad groupings of the Asia-Pacific Economic Cooperation (APEC) economies and potential fiscal costs of future pensions (figures 3.10 and 3.11) (Hinz and Zvinienė 2011).<sup>12</sup> Notable about this projection, which uses the World Bank's PROST (Pension Reform Options Simulation Toolkit) model, is that similar long-term outcomes in overall pension spending are reached at different rates and through the interaction of different influences. The high-income mature systems experience increases earlier, adding more than 5 percent of GDP to pension spending costs in the first 20 years and nearly 10 percent of GDP after 40 years. These additions are primarily owing to the advanced stage of population aging, but assume modest accrual rates that are characteristic of mature high-income systems in East Asia

**FIGURE 3.10** Pension spending projections by stylized groupings for APEC economies, 2010–70, illustrate rapid increase in pension spending in a no-reform scenario

*Projected pension spending as a percentage of GDP in APEC economies (no-reform scenario), 2009–75*



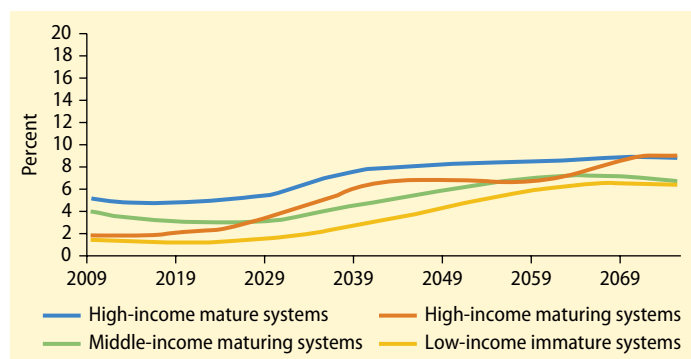
Source: Hinz and Zvinienė 2011.

Note: APEC = Asia-Pacific Economic Cooperation.

and Pacific. The lower- and middle-income cases experience lower spending increases in the initial decades of only 2 to 3 percent of

### FIGURE 3.11 Pension spending increases can be substantially reduced with key reforms

Projections by stylized groupings for APEC economies, 2010–70, assuming a gradual five-year increase in pension age and price indexation

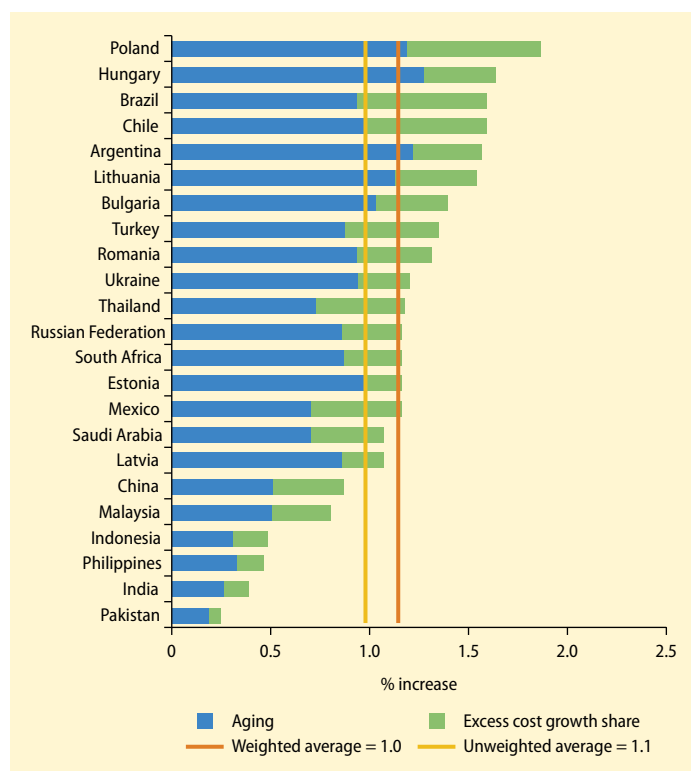


Source: Hinz and Zvinienė 2011.

Note: APEC = Asia-Pacific Economic Cooperation.

### FIGURE 3.12 Projected increases in public spending on health caused by aging, though significant, are not as substantial as for pensions

Projected increase in public spending on health care as a share of GDP, with aging-related and excess cost growth breakdown, various countries, 2010–30



Sources: IMF Fiscal Affairs Department 2010 based on OECD and WHO health data.

Note: Excess cost growth is growth in public health spending after controlling for aging. Weighted averages are based on purchasing power parity GDP.

GDP but then rapidly increase an additional 10 percent of GDP in spending between 2030 and 2070. The rapid increase in the later years is caused by the accelerating process of coverage expansion. The baseline is driven by the assumption that these economies continue to retain high annual accrual rates that are characteristic of low- and middle-income countries. As the members of these systems accrue more years of coverage and participation moves deeper into the income distribution, expenditures can be expected to escalate rapidly unless the benefit formulas for such a system are adjusted to compensate for the greater density of contributions. Figure 3.11 illustrates the major fiscal impact of two reforms that have been under consideration in several developing East Asian and Pacific countries in recent years: gradually increasing pensionable age by five years and using price indexation of benefits. These two reforms dramatically flatten the increase in pension spending and result in much lower (though still substantial) increments in pension spending.

Although health care spending projections are much more difficult to make over extended time horizons, they point to two broad trends: increasing public spending on health, and aging as a significant but not dominant factor driving increased public spending. Looking at various sources in turn, cross-country IMF estimates are presented in figure 3.12 from a simple model that also attempts to separate the aging or pure demographic effect on health spending from “excess cost growth” (driven by technology change and other non-demographic factors). Overall, for East Asia and Pacific, the projected increases in public health spending are not as substantial as for pensions, but nonetheless are not insignificant, especially proportional to current health spending. For Japan (not shown) and Korea, the comparable increments in health spending are just under 1 percent of GDP and over 3 percent of GDP (with around one-quarter of the effect from aging alone), respectively.

OECD projections of health and long-term care spending are also instructive, though



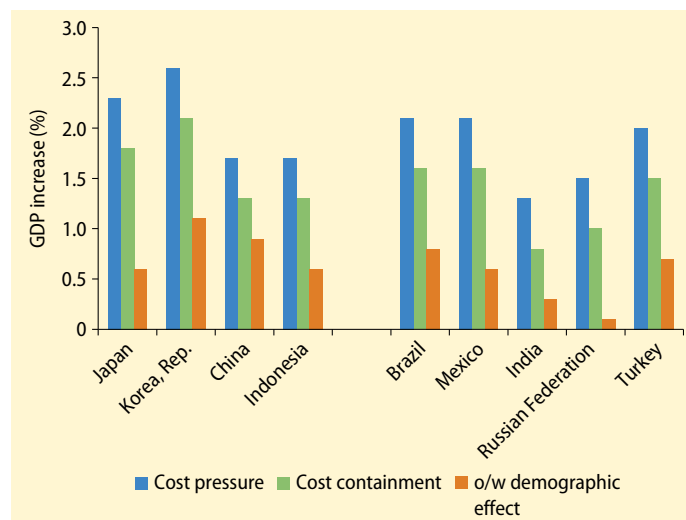
available only for China, Indonesia, Japan, and Korea in East Asia and Pacific (De la Maisonneuve and Oliveira Martins 2013). All East Asian and Pacific and OECD economies will experience significant increases in system costs over time. A few other pertinent points emerge from figure 3.13. First, although the absolute projected increase in public health spending is higher in red economies, the relative contribution of aging is more significant in China and Indonesia and also higher than other middle-income countries listed (more than half in China and over a third in Indonesia for the cost-pressure scenario and a higher share in the cost-containment scenario). This scenario assumes a stronger demographic effect than previous IMF estimates. Second, reflecting this assumption, the gap between cost containment (benign policy) and cost pressure (pessimistic policy) is significant and in Indonesia, for example, almost as large as the entire effect of aging. In short, aging matters and should be taken into account, but policy choices also matter a lot for the sustainability of health and long-term care systems.

A final source to consider is country-specific projections of health spending and the impact of aging. Unfortunately, these projections are limited for East Asian and Pacific economies, but the two available actuarial studies that look at this question suggest effects from aging more aligned with IMF estimates. For Malaysia, about one-third of the total projected increase in health spending between 2010 and 2030 is attributable to aging (Rannan-Eliya et al. 2013), while for Hong Kong SAR, China, projections until 2033 find a similar effect of about a 1 percent of GDP increase in health spending caused by aging in a total spending increase of 3.3 to 3.5 percent of GDP (Leung, Tin, and Chan 2007).

Although still nascent in East Asia and Pacific, a further fiscal risk to consider in the long term for countries with aging populations is public funding for long-term care. As chapter 7 of this report shows, publicly financed long-term care is present in richer economies of the region such as Japan, Korea, and Taiwan,

**FIGURE 3.13** Projected increases in public health spending reflect the importance of policy choices in sustainability of health care systems

*Percentage of GDP increase in public health care spending under cost pressure and cost containment scenarios, 2010–30*

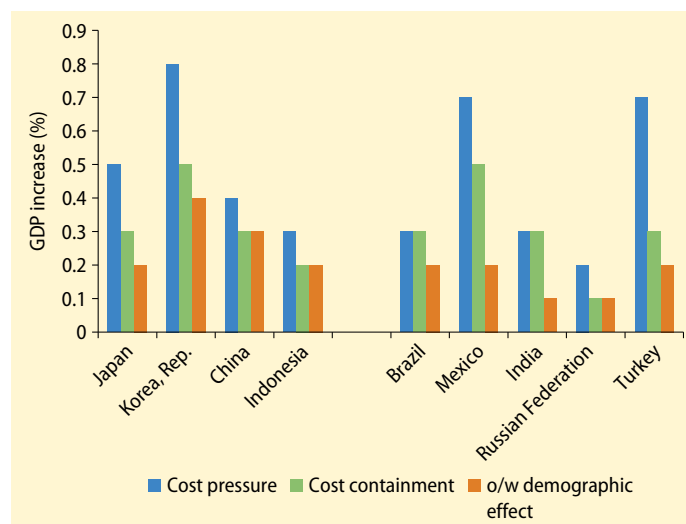


Source: De la Maisonneuve and Oliveira Martins 2013.

Note: o/w = out of which.

**FIGURE 3.14** Projected increases in public long-term care spending indicate additional fiscal pressure in countries where the aging effect is strong

*Percentage of GDP increase in public spending on long-term care, 2010–30, various countries*



Source: De la Maisonneuve and Oliveira Martins 2013.

Note: o/w = of which.

China, but remains in its infancy in the region's developing economies. However, long-term care is an area in which governments in rapidly aging countries such as China, Thailand, and Vietnam are showing increasing interest and already making policy commitments. OECD projections for long-term care in the region point to a further (though for the foreseeable future relatively modest) source of fiscal pressure where—as for pensions—the aging effect is strong (figure 3.14).

Each estimation approach has its strengths and limitations, but all point toward significant fiscal risks from increased age-related spending in East Asia and Pacific, particularly in the aging middle-income countries (largely orange economies in the report typology). Chapters 5, 6, and 7 of this report look at current pension, health, and long-term care systems in the region and discuss reforms that aim to strike a balance between managing cost escalation and fiscal risk, ensuring basic adequacy of benefits and services, and expanding coverage where it is currently less than complete.

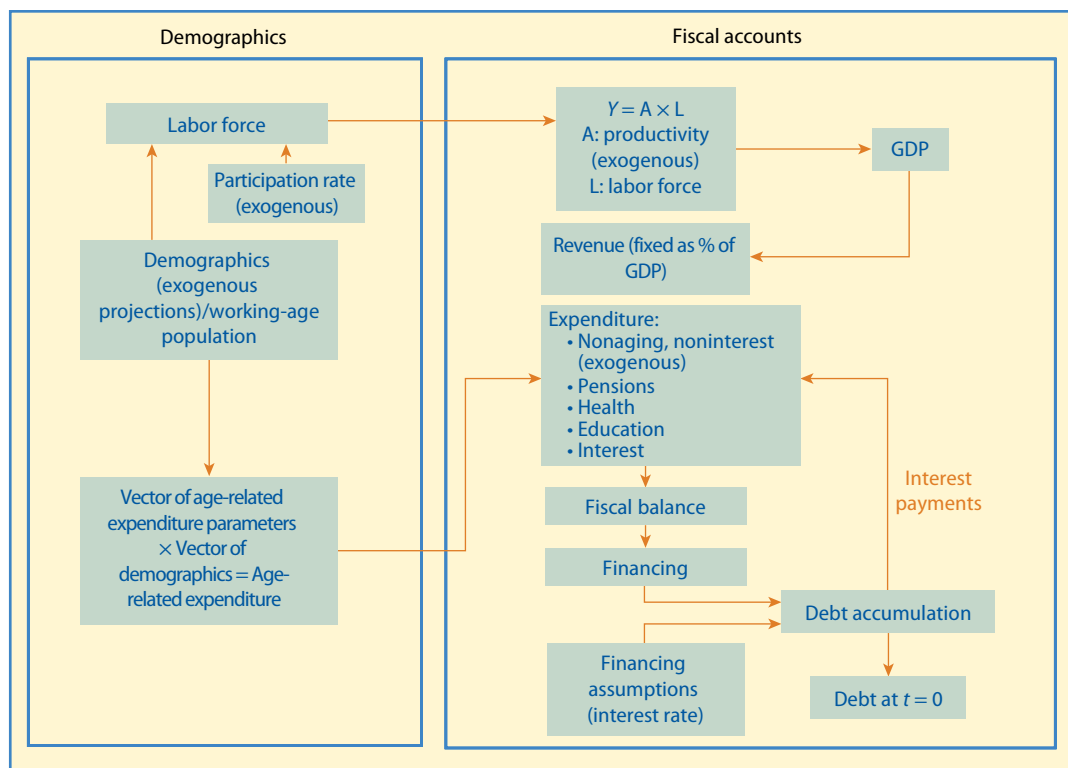
A more complex (and uncertain) picture of fiscal pressures from aging emerges if we try to incorporate debt dynamics into fiscal projections. Although the preceding fiscal projections are very useful for understanding orders of magnitude of age-related spending pressures, they fail to take into account that countries may be running fiscal deficits and hence financing public spending with debt that incurs further interest obligations. To develop a more complete analysis of whether an economy will have the fiscal resources to deal with the effects of aging, a few more factors need to be taken into account: national investment, external current account, foreign direct investment versus debt financing, and total external debt. Countries that already have a structural current account deficit and high external debt will have a smaller envelope to work with than those with the same demographics and saving behavior but with a current account surplus and low external debt. However, the standard debt sustainability analysis models used by agencies such as the IMF and

the World Bank do not incorporate such interactions between demographics and fiscal accounts. This decision is understandable in settings where the focus is on short-run macrofiscal situations, but such interactions become relevant when looking at long-term debt sustainability. A highly stylized effort at incorporating demographics into debt sustainability analysis follows here.

The model underlying the following simulations is a standard fiscal sustainability model with additional links to demographics and age-related expenditure. The analysis uses a standard fiscal sustainability framework linking GDP, fiscal accounts, and debt with long-term demographic projections and simple models that link demographics to production and to age-related expenditure. The model is highly stylized to make sure that interactions and results are well understood, so only the channels from demographics to GDP and from demographics to age-related expenditure have been modeled. Figure 3.15 shows a schematic overview of the links between demographics and fiscal accounts that underpin the simulation results.

Using the characteristics of 16 developing East Asian and Pacific countries, a number of stylized cases are presented on debt dynamics that reflect different combinations of three dimensions:

- *Aging pattern.* Broadly, two types of countries exist: those with young and slowly aging populations (green economies) and those with older and faster-aging populations (orange economies such as China, Indonesia, Malaysia, Thailand, and Vietnam).
- *Age-related expenditure levels.* For each group, the simulations analyze the impact of current per capita public spending on health care, education, and pensions in the long run. Thus, two levels of current aging spending are seen: low spending (spending on health care, education, and pensions at 1.5 percent of GDP each at end-2013) and high spending (spending at 2 percent of GDP each).

**FIGURE 3.15** Schematic overview of the links between demographics and fiscal accounts

Source: Pradelli and Van Doorn 2015.

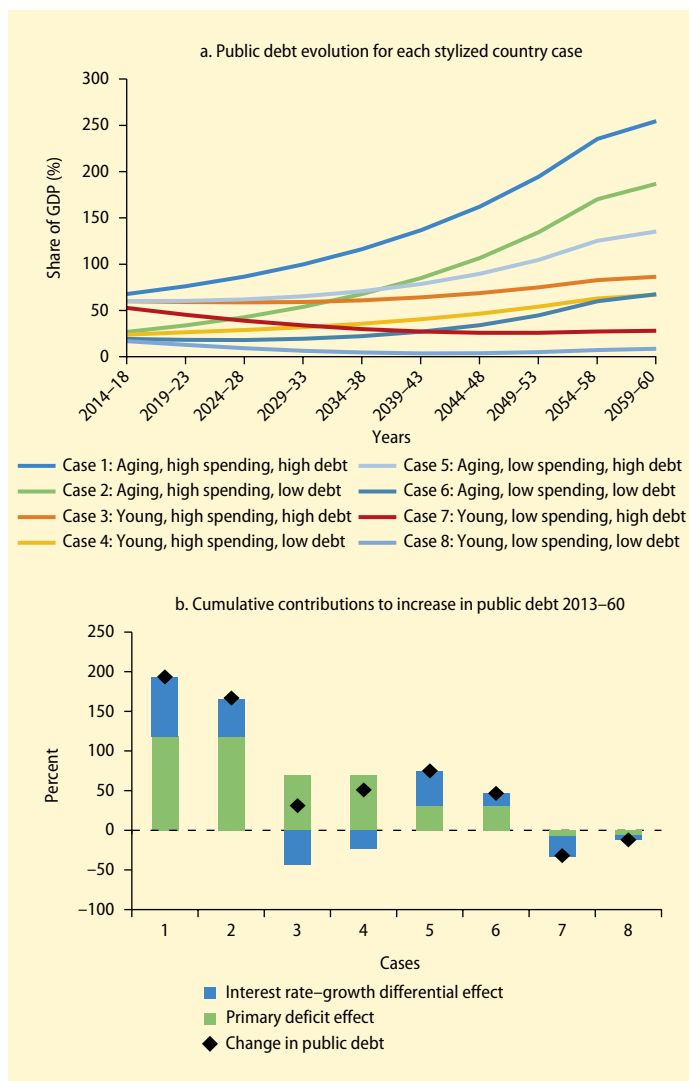
- **Initial debt levels.** The initial (end-2013) public debt burden affects long-term sustainability because it amplifies deficits driven by age-related expenditure: low debt means public debt at 20 percent of GDP, and high debt means 60 percent of GDP.<sup>13</sup>

The simulations demonstrate for a stylized set of East Asian and Pacific countries the major variability in public debt over time from different interactions of initial debt levels, spending on age-related programs, and demographic trends (figure 3.16). The initial level of debt is almost a pure level effect. The results show that the case of an aging country with a high level of age-related spending and a high level of initial debt is clearly unsustainable, followed closely by the equally unsustainable case with a lower level of initial debt. Countries with younger

populations and low age-related spending have the best fiscal sustainability outlook, as we might expect. Maintaining a primary fiscal surplus and a healthy growth rate (higher than the interest rate paid on public debt) are the key determinants of the fiscal sustainability of aging. In cases 1 and 2 (aging countries), both high primary fiscal deficits and adverse interest rate growth dynamics lead to continuous debt accumulation. Cases 3 and 4 have the same spending in the beginning but more favorable demographics, which leads to both a narrower primary deficit and higher growth. The last four cases start with low age-related spending, which allows them to run primary surpluses, at least for the first 15 years. The countries with younger populations still grow relatively fast and are able to reduce debt. Although these are only stylized cases (built on composites of real country initial

**FIGURE 3.16** Initial debt and spending levels and future debt dynamics have important interactions with demographics that can sharply increase the fiscal impacts of aging

*Stylized debt dynamics and composition with East Asian and Pacific demographics, 2013–60, under different starting combinations of spending levels, debt, and demographics*



Source: World Bank estimates in Pradelli and Van Doorn 2015.

Note: Case 1 = aging, high spending, high debt; case 2 = aging, high spending, low debt; case 3 = young, high spending, high debt; case 4 = young, high spending, low debt; case 5 = aging, low spending, high debt; case 6 = aging, low spending, low debt; case 7 = young, low spending, high debt; case 8 = young, low spending, low debt.

conditions in East Asia and Pacific), they do point to the importance of thinking about debt dynamics when considering fiscal risks of aging—and conversely, of thinking about demographic dynamics when looking at long-term debt dynamics.

Addressing concerns about saving in the region will require improved social security and the deepening of financial markets and the role of banks. Ultimately, the impact of aging on capital formation in East Asia and Pacific will depend on the interaction of a number of factors: the pace, magnitude, and intensity of demographic changes; the consequent behavioral adjustments in response to fertility and longevity changes; and the macroeconomic environment. Numerous behavioral factors spurred by lower fertility and longevity suggest that the compositional effect of aging may be significantly offset. Furthermore, the region is already marked by high savings rates and in the future will be subject to macroeconomic forces, international capital flows, financial deepening, and expansion of social security, which together may dominate the older age composition effect. All of these factors make predictions of aging impacts on aggregate savings tentative but suggest that the demographic effect may not be the primary factor determining future saving behavior.

## Conclusion

The preceding analysis suggests that even rapidly aging countries in East Asia and Pacific have significant scope to mitigate the potentially negative growth effects of aging, but such action will require sometimes challenging policy reforms. It will also necessitate social and cultural change in many countries of the region that at best will happen only gradually. Younger countries have the good fortune of time before aging takes hold, but they need to use that time as productively as possible to prepare for the rapid aging that will come in due course. For others, the demands are more pressing, although the examples of red economies demonstrate that East Asian societies have shown themselves more willing than those in other parts of the world to make sacrifices in the interest of sustaining healthy economies and intergenerational equity. The labor market aspects of the needed reforms are discussed in the following chapter.

The bigger risks from aging in the region are fiscal and require urgent policy attention in rapidly aging countries. Distinguishing the demographic and economic challenges facing different groups of East Asian and Pacific countries is important as they think about aging populations:

- For *red economies*, reducing the structural labor force decline from aging will be the most critical challenge. Although the fiscal risks are significant, a number of red economies have already adopted forward-looking policies in areas such as pensions and health that will help contain the fiscal impact of further aging, although areas such as long-term care will continue to pose challenges (see chapters 5–7 of this report for details).
- For *orange economies*, the challenges of the demographic transition require sustaining high productivity growth. At the same time, they will need to mitigate the labor supply and fiscal impacts of rapid aging through ongoing pension and health reforms and labor policies to extend the working lives of urban and formal sector workers.
- For the younger *green economies*, the priorities are to establish the conditions to realize maximum GDP growth from the demographic dividend (that is, investments to raise productivity and maximize youth employment) and to avoid adopting policies in areas such as pensions and health that are affordable now but would rapidly become unsustainable once aging accelerates.

The main areas of services and entitlement reform—pensions, health, and long-term care—are discussed in chapters 5–7 of this report.

## Notes

1. Because only elderly dependency ratios are shown here, the patterns may not perfectly match the patterns of aging across groups. Some countries, such as Singapore, appear much younger than they are when the rest of the population age structure is taken into

account. The implication is that they will be aging faster.

2. This literature generally excludes the Pacific.
3. See for example Park, Lee, and Mason (2012), which provides useful growth accounting results, finding for a selection of East and South Asian economies that only in Korea and Hong Kong SAR, China, does the negative growth effect of rising old-age dependency outweigh the positive contribution of falling youth dependency from 2011 to 2020.
4. Interestingly, however, surveys of global attitudes to migration find more positive attitudes to immigration in some potential host countries in East Asia and Pacific. Korea, for example, had the lowest share of respondents globally agreeing that immigration should be further restricted (at 25 percent), and Japanese respondents were almost evenly split. These findings contrast to those in Malaysia, where almost 90 percent of respondents wanted more restrictions on immigration (Pew Research Center 2007).
5. For literature on the link between age composition and growth, see Bloom and Williamson (1998); Feyrer (2007, 2008); Lindh and Malmberg (1999); Modigliani (1986); Modigliani and Cao (2004); Persson (1999); and Sarel (1997).
6. This section draws on a background paper by Malathi Velamuri (2015).
7. Studies that have shown strong links between national savings rates and age structure include those by Bloom et al. (2007); Deaton and Paxson (1997); Fry and Mason (1982); Higgins (1998); Kelley and Schmidt (1995); Lee, Mason, and Miller (2000); and Mason (1988).
8. In theory, a stationary population has no aggregate savings because in the absence of a bequest motive, the dissaving of the old and the saving of the young cancel out (Ando and Modigliani 1963; Bloom, Canning, and Sevilla 2003). However, when the population grows or the economy is growing rapidly and incomes of wage earners are high relative to the incomes of the retired (as in East Asia and Pacific), aggregate savings or dissavings may occur.
9. See Horioka (2010) and the references therein.
10. See Deaton (1992) for Thailand, and Deaton and Paxson (1993) for Taiwan, China.
11. See the National Transfer Accounts website, <http://www.ntaccounts.org/web/nta/show/NTA%20Data>.

12. Although the estimates use stylized composites from across APEC, two-thirds of the economies are from East Asia and Pacific, and they particularly dominate the categories other than high-income mature.
13. The model and simulations are discussed in Pradelli and van Doorn (2015).

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# Labor Market Policies to Address Aging in East Asia and Pacific

## 4

### Introduction

Concerns over shrinking labor forces and output have prompted many policy initiatives in richer economies of East Asia and Pacific that may provide lessons for middle-income countries experiencing rapid aging. Earlier chapters have illustrated the challenges of declining labor forces in rapidly aging East Asian and Pacific countries, albeit mitigated by improving worker quality and other factors. The emerging experience of the region's red economies (continuing the typology introduced in chapter 1) in responding to these challenges provides some useful lessons for labor market policy responses. One key theme is the need for policy action across the life cycle in the context of rapid aging. These strategies include efforts to stimulate fertility in countries with aging populations, increase female labor force participation, encourage immigration to augment shrinking supplies of local labor, and extend the productive lives of older workers.

This chapter examines the experience with labor market policies to address aging in red economies of East Asia and Pacific and elsewhere, drawing out policy implications for East Asian and Pacific countries going forward. The first section discusses policies to stimulate fertility and female labor force participation as well as legacy policies that may counteract such initiatives. The second section reviews efforts in the region and globally to extend productive working lives with a primary focus on the formal sector, given the already overlong working lives of those in the region's rural and informal sectors. Migration policies are discussed in the third section. The final section briefly discusses policies to stimulate lifelong learning in the context of enhancing both overall labor quality in the face of declining labor supply and employment prospects of older workers. Compared with other chapters, this chapter relies more heavily on examples from richer red economies

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This chapter draws from a background literature review for this report by Shonali Sen (2014), a background paper on migration in East Asia and Pacific by Çağlar Özden and Mauro Testaverde (2014), inputs on labor and aging policies in the Republic of Korea by Dewen Wang, and a study visit to Japan by the task team.

and OECD countries, because they are more advanced in trying to address the labor market consequences of rapid aging.

### Fertility incentives

In recent decades, multiple initiatives have been undertaken in East Asian and Pacific countries with aged populations to reverse very low fertility rates and to increase the participation of women in the labor force. As noted in chapter 1, the richer red economies have experienced very low fertility rates for some time, and their earlier trajectories of fertility decline are seemingly being followed by a number of middle-income countries in the region, including China, Thailand, and Vietnam. In addition, although East Asia and Pacific generally has relatively high female labor force participation by global standards, a number of countries, including Fiji, Japan, Malaysia, and the Republic of Korea, face major challenges getting women to reenter the workforce after childbirth (World Bank 2012). This difficulty has led to many initiatives to stimulate fertility directly and to promote family-friendly employment policies in countries such as Japan and Korea that are attempting to encourage women to return to the labor force after childbirth. Coherence across fertility and labor policies has not always been a strong point, however; for example, evidence from countries of the Organisation for Economic Co-operation and Development (OECD) indicates that high child allowances reduce incentives for women to return to work (IMF 2012).

Economies including Japan; Korea; Singapore; Taiwan, China; and Vietnam have introduced different combinations of measures to help stimulate fertility. Measures used in the region have included direct payments to families for second, third, and fourth children (the “baby bonus,” for example, paid for six years after birth in Singapore since 2000, and the “mother hero” lifetime benefits in Mongolia for mothers having four or more children) and for any childbirth (as in Vietnam, where a lump sum of two months’ pay is provided within the social insurance system); priority access to public housing; tax

breaks and rebates for families with young children or large families; and generalized child allowances. In some cases, national initiatives have been supplemented by sub-national programs, as in Seoul. For several East Asian and Pacific countries, such measures have lagged the decline in fertility below replacement, reflecting the legacy of earlier family planning policies that were successful in rapidly reducing previously high fertility rates. Korea, for example, introduced its first pronatalist strategy (First Basic Plan for Low Fertility and Aged Society) only in 2006, well after fertility had declined to very low levels.

The balance of evidence from East Asia and Pacific on direct incentives to have more children suggests they have not been particularly effective or cost-effective.<sup>1</sup> Evaluation of Japan’s history of pronatalist initiatives since the early 1990s found almost no effect on the likelihood of second and third children, although a slight recovery has occurred in women having at least one child (Ma 2010).<sup>2</sup> The consistently low fertility rates across the region’s red economies suggest that similar conclusions are likely to be reached and that a wider array of policies and changes in social attitudes are likely to be needed. In a different context, for example, surveys in urban China found that only a minority of families who are eligible to have second children wish to do so (about 18 percent to 24 percent of eligible families in Beijing and less than 40 percent of eligible families in Jiangsu) (Jones 2009).

### Enhancing female labor force participation

Paid parental leave has been spreading across the region, although for developing East Asian and Pacific countries, it is mostly restricted to the formal sector and thus excludes the majority of families. A study of 13 East Asian and Pacific countries finds maternity leave in all of them, most often employer financed (World Bank 2012). For example, maternity leave in Japan is for up to one year and paid at 50 percent of salary, which is around the OECD average. Over the years, take-up among eligible women

has increased significantly, from just under 50 percent in 1996 to 84 percent by 2012 (MHLW 2013). In developing East Asian and Pacific countries, however, maternity leave is typically only for those within formal social security schemes (a minority in nearly all cases) and tends to be shorter: 98 days in China, three months in Thailand at 50 percent of salary, and up to six months in Vietnam.<sup>3</sup> Leave for fathers is limited but also increasing across the region, although it remains modest, where available, in developing East Asian and Pacific countries (for example, five to seven days in Vietnam), and take-up tends to be low. In Japan, fewer than 2 percent of men took their parental leave in 2012, similar to the 2 percent who avail themselves of such leave in France and Germany but much lower than the 70 percent take-up rate in Sweden (Steinberg and Nakane 2012).<sup>4</sup> For OECD countries, parental leave after childbirth is positively, although modestly, associated with female employment and hours worked, although the positive impact reverses when paid leave is longer than two years (Thévenon and Solaz 2013). Evaluation of the effects of paid parental leave in East Asian and Pacific countries is limited, but evidence from Japan (Waldfogel, Higuchi, and Abe 1999) indicates a much stronger impact on likelihood of women's return to work after childbirth than in the United Kingdom or the United States (Suruga and Cho 2003), and employers providing parental leave report more women return to work.

Across the world, public subsidies for child care affect female labor force participation positively, although the degree of impact depends on country context and alternative options for informal care (see chapter 2 of this report on family-provided child care). A study of 18 OECD countries (Thévenon 2013) found that the level of public spending on child care services for parents of children under three years old significantly affects employment of women ages 25–54. Similarly, analysis from Europe finds that public subsidization of child care is associated with higher rates of women's employment and fertility (Den Dulk and

Van Doorne-Huiskes 2007). Positive impacts on female employment have been found also in middle-income countries such as urban Brazil and Colombia (under its Hogares Comunitarios program). In East Asia and Pacific, however, evidence from countries at different income levels (including Fiji, Japan, Korea, and Malaysia) shows sustained drops in female labor force participation after giving birth, pointing to the challenges of balancing child-rearing responsibilities and work (World Bank 2012).

In response to the challenges of reentry into the workforce after childbirth, several East Asian and Pacific countries have subsidized child care in different ways. Overall, East Asian and Pacific countries that have promoted child care tend to use subsidies and incentives rather than mandates on employers, an alternative approach taken in countries such as Brazil, Chile, and India, which mandate crèche provision by employers over a certain size. Within East Asia and Pacific, Korea has introduced subsidized day care for children up to four years of age, with variable subsidies according to family income. Singapore provides a subsidy for children under seven years old in child care centers when their mothers are working, with higher subsidies for infants and low-income families. Malaysia, in contrast, works through the tax system, making child care facilities an allowable expense for employers and making payments by workers tax exempt. However, only 166 centers—of which only 26 were in private organizations—were established nationally in response to this policy. In Thailand, the trade unions are involved in provision of crèches and receive only very modest support from municipalities (for example, through milk subsidies). Vietnam has taken a different approach for informal sector women by lengthening the school day, especially where attendance is usually a half day. China has taken a somewhat similar approach in its efforts to promote mass coverage of early child development programs.

In East Asian and Pacific countries where public subsidies for child care are significant, they have had some success in stimulating

women's employment. However, disentangling the effect of child care alone is not always easy when such initiatives are bundled with other measures, as discussed below. Available assessments come from richer East Asian and Pacific economies and show positive effects of child care provision in Japan (higher than cash allowances) and Korea (Kim 2007; Steinberg and Nakane 2012). When child care provision and subsidies were sharply reduced in Mongolia (World Bank 2013b; World Bank and ADB 2005) and China (Chi and Li 2008; Du and Dong 2010; Maurer-Fazio et al. 2011) in the context of state enterprise restructuring, female labor force participation fell in urban areas, which researchers attribute in part to the rising costs of child care.

The emerging practice in richer East Asian and Pacific economies is to bundle packages of measures that aim to stimulate female labor force participation, especially after childbirth. In 2007, Singapore introduced a package of training programs, flexible working arrangements, targeted active labor programs and work fairs, and other measures under the auspices of its Tripartite Workgroup on Enhancing Employment Choice for women. These programs complemented a range of measures to stimulate fertility. Taiwan, China, bundled parental leave benefits, child care subsidies, and early childhood development programs under its White Book of Population Policy (Ministry of Interior 2008). Japan has also had a series of initiatives (including the Angel Plans in the 1990s and the Support Plan of 2004) to help combine work and child rearing, including child care subsidies, child allowances, and employer incentives to become more family-friendly (Ma 2010).<sup>5</sup> Japan's target is to increase the percentage of women resuming their careers after childbirth from 38 percent in 2010 to 55 percent by 2020. Firms judged to be taking proactive measures to promote family-friendly workplaces are also given a Kurumin mark (figure 4.1), and women's reemployment is supported through various public programs, such as the Mothers Hello Work program.

**FIGURE 4.1** The Kurumin mark is given to firms in Japan that pursue child-friendly policies



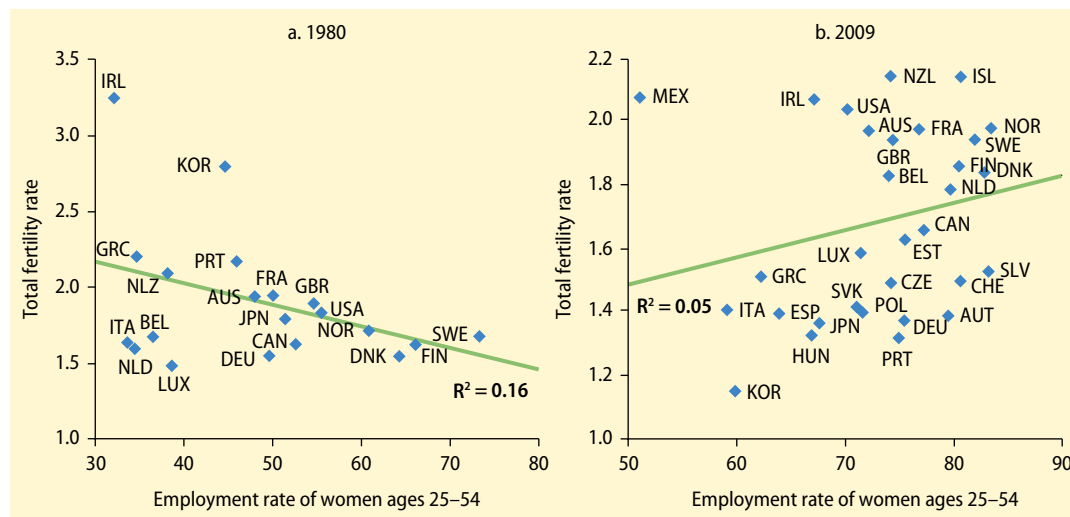
Korea's Saeromaji Plan 2010 provided a similar package of benefits, including lower taxes for families.

Although OECD countries historically saw a trade-off between childbearing and increased labor force participation of women, recent evidence indicates this is mostly no longer the case. As shown in figure 4.2, the relationship between women's work and fertility behavior has reversed over the past few decades in the OECD, and having more children is associated with higher rates of employment among women ages 25–54. However, while both Korea and Japan have seen rising female labor force participation, they have not managed to combine this with increased fertility in the way that a number of other OECD countries have. The factors behind such divergent patterns are discussed in box 4.1.

Notably, some East Asian and Pacific countries actually provide disincentives to women's work. A previously common (although declining) feature of labor laws in East Asia and Pacific and other parts of the world has been gender-specific restrictions on the sectors, types of work, and hours of work for women. Within the International Labour Organization, such policies are no longer considered to promote the interests of

**FIGURE 4.2 The relationship between women's work and fertility has reversed sharply in recent decades in most member countries of the OECD**

*Employment rates of women ages 25–54 and total fertility rates, 1980 and 2009, selected countries*



Source: OECD 2011.

Note: OECD = Organisation for Economic Co-operation and Development. Country name abbreviations are ISO 3166 standard.

#### BOX 4.1 Fertility and public policy in East Asia and Pacific and the OECD

Much of East Asia and Pacific already has below-replacement levels of fertility. A number of national governments in the region (Japan, the Republic of Korea, and Singapore) are especially concerned by the ultra-low total fertility rate (TFR) at or below 1.3 children per woman, which is comparable to some of the lowest TFR countries, such as Germany, Hungary, and Portugal. In comparison, the Organisation for Economic Co-operation and Development (OECD) average TFR is 1.74 children per woman. Although China is not considered to be one of the “lowest low,” its official TFR is well below replacement level at around 1.6 children per woman (and could be considerably lower, according to estimates from a number of well-respected researchers).

These fertility levels raise two important questions for East Asian and Pacific governments: What are the main drivers of fertility decline and recovery, and what public support is effective in enabling people to realize their desired fertility plans? In Europe, fertility rates declining from their 1970 levels generally were a result of women's inability to match career

and care commitments. The drop happened at a time of increased female participation in higher education and the labor market. Increasing participation in higher education, coupled with evolving societal attitudes toward gender roles, influenced career aspirations as well as partnership preferences, such as lower rates of marriage. These choices resulted in not only postponement of childbearing but also increased propensity for childlessness. However, the relationship with employment has reversed in Europe since the 2000s (OECD 2011), as seen in many OECD countries, such as Greece, Hungary, Italy, Japan, Korea, Poland, and Spain, where low female employment rates coexist with low fertility.

Since 2002, a small rebound has occurred in fertility in about half the OECD countries (OECD 2011), though whether this trend will sustain over time and can be replicated in low-fertility countries of East Asia and Pacific is unclear. One part of the recovery is explained by a fertility catch-up, because births that occurred at young ages in the past are no longer taking place but recover as births take

*box continues next page*

**BOX 4.1 Fertility and public policy in East Asia and Pacific and the OECD** (*continued*)

place at older ages (Bongaarts and Sobotka 2012). Another major influence behind the recovery is improved public support. An OECD (2011) report observes that although direct financial support had a temporary and limited impact on birth rates, investments in formal child care services and flexible labor markets that also involve a greater degree of permanent employment have been most effective. For instance, Nordic countries have successfully shifted perceptions about combining parenthood and career aspirations through universally accessible parental support, including paid and job-protected parental leave, flexible work arrangements, and subsidized child care and schooling. As a result, Nordic countries have the highest fertility rates in the OECD.

Several structural features distinguish low-fertility East Asian and Pacific countries from the OECD

countries, suggesting that fertility recovery may not be easy in the region. These features include less flexible labor markets, lack of public support, and traditional attitudes toward gender roles related to care commitments. High financial costs of child care and housing in Japan and Korea have also constrained people in realizing their fertility plans. Lack of stable employment for both parents seems to have a particularly adverse effect on the decision to have a second child (Rendall et al. 2014) and is likely to be another factor that challenges fertility recovery in East Asia and Pacific. In China and Vietnam, explicit fertility policies have played a more specific role. Although these policies clearly affected past fertility trends, to what extent further relaxation of policies would result in a sustained increase in fertility is less clear, given the range of other factors at play in fertility decisions.

women, and they seem even less appropriate in countries experiencing rapid aging. More specifically, incentives may exist in tax systems that encourage women to stay out of the workforce. Although promoted as part of family-friendly policies, such measures increasingly run counter to other policies to encourage return to work after childbirth. The Japanese tax and pension systems are one example: dependent exemptions for heads of household (usually men) are provided as long as the dependent spouse's income is under a fairly modest threshold, a measure considered to discourage full-time work among women. Similarly, the pension system has incentives for nonworking women. These policies are under review. More generally, analysis points to the positive association between neutral tax treatment of second earners, child care subsidies, and paid maternity leave (Steinberg and Nakane 2012).

Although policy measures to stimulate female employment are welcome, realizing their full potential will require longer-term shifts in social attitudes in many East Asian and Pacific countries toward more shared responsibility between women and

men in child rearing. This issue is a challenge in much of the world. Countries such as Singapore, through public information efforts, and Japan, through its 2005 Gender Equality Law, are aiming to address social attitudes toward the roles of men and women in family life. Japan is also targeting greater efforts at men with its Ikumen project, which recognizes individual men and groups of men who take an active role in parenting.<sup>6</sup>

### Extending productive working lives

As societies in East Asia and Pacific age, urbanize, and formalize, the challenge of ensuring long and productive working lives becomes ever more pressing. As East Asia and Pacific continues its rapid urbanization, coverage of pension systems grows, and rising incomes provide new opportunities for people to retire before they are no longer physically capable of work, thereby creating a significant risk that average lengths of working lives will fall. Although the potential trend of falling retirement ages for rural and informal sector workers is in one sense a boon



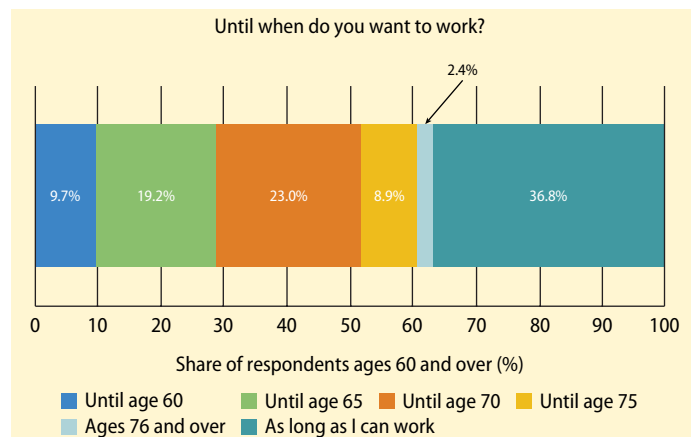
and an indicator of rising prosperity and welfare, the experience of richer East Asian and Pacific economies already points to a need for strengthening policies to increase the working lives of existing urban and formal sector workers and to ensure that any future fall in rural and informal working lives is not unduly precipitous. The continuing increases in longevity and healthy years of life expectancy mean both that people will have to work until older ages over time and that they will be capable of doing so. Surveys in richer East Asian and Pacific economies suggest that people recognize the need to work longer and the desirability in terms of economic benefits and strengthened social engagement (see figure 4.3 on willingness to work in old age in Japan).

A common objection to extending working lives of older workers is the potential effect on employment among younger people, but evidence globally and from within the region indicates that such negative impacts are not found in practice. The seemingly intuitive concern that increasing the participation of older workers will squeeze out jobs for younger people is referred to as the “lump of labor fallacy.” In fact, global evidence shows that participation of older workers if anything has a modestly *positive* impact on employment of younger people (see box 4.2).

Richer East Asian and Pacific economies have introduced a range of financial incentives for employers to promote longer working lives that may offer lessons for developing East Asian and Pacific countries experiencing rapid aging. Financial grants conditional on employers boosting recruitment, retention, and reemployment of older workers are being used in Japan, Korea, and Singapore, similar to practices in a number of European countries and other countries such as Australia. Since 2003, employers in Japan have been given subsidies to hire older workers ages 45–64 (OECD 2012; UNFPA and HelpAge International 2012). Under another program, small or medium companies that provide their employees with the opportunity to work until age 70 are provided with variable

**FIGURE 4.3 Japanese workers show a desire to work in old age well above OECD counterparts**

*Percentage of Japanese workers desiring to work until indicated age, 2007*



Source: Cabinet Office, Government of Japan 2008.

Note: OECD = Organisation for Economic Co-operation and Development.

financial aid, depending on the number of employees covered (Phang 2011). In Korea, starting in 2011, a new system of subsidies has been adopted in selected occupations, replacing a previous employment grant for the elderly. The objective is to promote employment of workers ages 60 and older who will most likely be made unemployed through a retirement-age extension subsidy, a retiree reemployment subsidy, and a new temporary subsidy for employment of people ages 60 and older (OECD 2012). Since 2011, employers in Singapore receive up to 8 percent of wages of workers over age 50 under the Special Employment Credit Scheme, which is expected to cover about 350,000 older Singaporeans. This credit is supplemented by a lump sum grant to promote firm-level initiatives to recruit, retain, or reemploy mature workers.

An important question related to financial incentives for hiring older workers is the extent to which they should be targeted by age only or as part of wider schemes based on characteristics such as unemployment or low income. In Europe, over half of such measures target older workers specifically (for example, in Bulgaria, Denmark, Finland, France,

## BOX 4.2 The lump of labor fallacy

The idea that increased participation of older workers will negatively affect employment for younger people is known as the *lump of labor fallacy*. This fear of displacement is grounded in the assumption of a zero-sum labor market in which every job occupied by an older worker is one less potential job for a younger person.

In fact, higher participation of older workers tends to stimulate the economy and in doing so creates higher aggregate demand for labor, thereby benefiting young people as well. In addition, the types of jobs among older and younger workers differ, so they cannot be considered substitutes in general. Figure B4.2.1 shows results of analysis for 12 Organisation for

Economic Co-operation and Development countries on the relationship between employment of people ages 55–64 and those ages 20–24. For all but one country (Japan, although the negative impact is modest), increases in employment of older workers had at worst a neutral association and in most cases a positive association with employment rates of young workers. This relationship is confirmed in regression analysis. Although more analysis is needed on the question in developing East Asian and Pacific countries, studies to date for China confirms no impact on youth employment from higher employment rates of older workers (Munnell and Wu 2013; Zhang and Zhao 2012).

**FIGURE B4.2.1 In OECD countries, higher employment rates of older workers are associated with modestly higher rates of youth employment**



Source: Gruber, Milligan, and Wise 2010.

Note: OECD = Organisation for Economic Co-operation and Development. Data are taken from beginning of the last economic upturn by country to latest available year.

Germany, Hungary, Italy, and Romania), while the rest provide wage subsidies for employers recruiting older people as part of vulnerable groups such as the long-term unemployed, people threatened by redundancies, and people with disabilities (for example, Austria, Denmark, Latvia, Lithuania, Malta, Portugal, and Sweden) (Feifs et al. 2013). The only available evidence (from 2006) on impact

concludes that wage subsidies granted solely on the basis of age may not be very effective compared to a subsidy that is targeted more narrowly at the older long-term unemployed or at low-income older workers.

Wage subsidy schemes that are predominantly targeted at older workers raise a number of issues in terms of cost-effectiveness. First, because older workers are a very diverse

group, wage subsidies targeted on age alone risk being quite blunt instruments and may result in small net employment effects at considerable cost. They may involve substantial deadweight loss (that is, a large proportion of subsidized workers would have been employed even without the subsidy) and substitution or displacement effects (that is, subsidized jobs for eligible workers lower job opportunities for workers ineligible for the subsidy). Korea's 2011 reforms of financial incentives for hiring older workers were driven by evaluations that found substantial deadweight losses from previous efforts. Second, subsidies for older workers as a group may lead to stigmatization and reinforce negative attitudes among employers regarding hiring and retention of older workers (OECD 2006).

For East Asia and Pacific, the approach to date has more commonly been to adopt policies targeted at all people above a certain age and to supplement them with targeted supplements for particular groups among older people (for example, Singapore's Employment Assistance Payments, which are targeted at workers otherwise unable to be reemployed, in addition to general programs to support employment of older workers). This

approach seems defensible in a period when governments are trying to change the societal mindset on the productive value of older people, but close evaluation will be needed to assess the cost-effectiveness of different approaches as the stock of older workers grows. Incentives may need to become more targeted over time to those at highest risk of early exit from the labor force or at highest risk of failure to reenter the labor force.

Richer East Asian and Pacific economies have increasingly sought to reinforce financial incentives to extend working lives with employment services targeted at older workers. As with financial incentives, a number of countries in East Asia and Pacific and beyond have instituted employment service programs specifically targeted to older workers. In the European Union, Germany provides an example with its Perspective 50 Plus program of active labor policies and campaigns to promote attitudinal change among employers and society (OECD 2012). In East Asia and Pacific, Japan has a set of measures from middle age onward, as do Korea and Singapore (see box 4.3). Evaluations of impact and cost-effectiveness of these programs are generally lacking. Evidence from Japan suggests small

#### **BOX 4.3 Employment services targeted to older workers in Japan and the Republic of Korea**

Japan has strengthened its public employment services by establishing special offices that support older job seekers and incumbent workers, as well as supporting the reemployment of older workers through the following programs: Career Exchange Plazas to help middle-aged and older white-collar job seekers work in close cooperation with Talent Banks; Older Persons Vocational Experience Utilization Centers to provide free placement services and dispatching services for persons ages 60 and older; Industry Employment Security Centers to provide matching services to middle-aged or older workers; Elderly Employment Support Centers/Corners to establish an office in every prefecture to provide assistance to middle-aged and older workers to develop career life plans. These services all fall under the umbrella of the “ageless

society” philosophy and are complemented by the Act on Stabilization of Employment of Older Persons and Silver Human Resources Centers.

Korea has established a talent bank for older job seekers that has been connected to job centers since 2012. Moreover, some private agencies have been designated as employment service centers to support middle-aged professional workers with a certain level of qualifications in their job search. Korea has also established special offices that support older job seekers as well as older incumbent workers through the Aged Service Centers and Manpower Banks for Older Workers.

*Sources:* OECD 2006 and Ministry of Health, Labor, and Welfare presentations to World Bank staff for Japan; OECD 2012 for Korea.

improvements in placement of workers ages 60–64 after the introduction of age-targeted employment services, but how much of the effect was attributable to the programs cannot be determined (OECD 2006).

Supplementing the preceding measures are programs to incentivize workplace adjustments to accommodate older workers and enhance their productivity. Given the onset of physical limitations for older workers, many countries have sought to induce adjustments in the physical work environment in firms through grants, loans, and other tools. This approach is also happening increasingly on a purely private basis, as firms realize the financial payoffs of often modest investments. The most famous example in private enterprise is Germany's BMW: in response to concerns about productivity on an assembly line staffed by older workers, BMW spent €40,000 on 70 small changes to workplace design and equipment to accommodate the particular needs of older workers. Within a year, the line's productivity had improved by 7 percent (matching that of others staffed by younger workers), and within two years, absenteeism caused by poor health had fallen to 2 percent below the firm average—payoffs that much more than offset the initial investment (Loch et al. 2010). The positive outcome is mirrored in a larger study of productivity and age profiles in response to different interventions (Bussolo, Koettl, and Sinnott 2015; Göbel and Zwick 2010). In East Asian and Pacific red economies, governments provide grants and subsidized loans to firms to undertake such adjustments. For example, Korea since 2011 has provided subsidized loans for installation of age-friendly facilities, and Singapore provides grants that may be used by firms for upgrading. Increasingly, firms in Japan are also making such investments on a purely market basis.

A second broad set of policies commonly used to stimulate work at older ages is within tax and social security systems, and these methods are spreading in East Asia and Pacific. Overall, older workers globally have been found to be more sensitive than younger workers to financial incentives and after-tax

wage rates (IMF 2012). Various mechanisms are used in OECD and richer East Asian and Pacific economies to take advantage of this phenomenon, including the following:

- *Providing incentives in tax and social contribution systems.* These include specific income tax credits for older workers (for example, Australia, Denmark, the Netherlands, Sweden, and the United Kingdom, with the tax credit increasing with the age of the worker in some cases); reductions in or exemptions from social contributions for workers over a certain age (for example, France, the Netherlands, and Spain); and tax credits that are general but for which older people are disproportionately represented in the target groups (for example, in Korea, the earned income tax credit introduced in 2008 for households with no children and some self-employed individuals).
- *Reducing disincentives to work in social security systems.* Social security systems may give disincentives to work at older ages in a variety of ways. The first is treatment of work income while in receipt of a pension. Historically, countries such as the former Soviet Union republics prohibited receipt of both pension and work income, although these systems were reformed in most cases during transition as the state ceased to be the dominant provider of both pensions and wages. Within East Asia and Pacific, Japan provides an interesting case: it retains a social security earnings test whereby pension benefits beyond the basic pension are withdrawn in proportion to labor income at varying rates, according to age and income level. For those ages 60–64, benefits are first withdrawn at a 50 percent rate and then suspended entirely for incomes over ¥460,000 (in 2012). For those ages 65 and older, a 50 percent withdrawal applies over the same threshold. Analysis, not surprisingly, finds negative effects on labor supply among workers ages 60–64 in Japan (Shimizutami, Fujii, and Oshio 2012).<sup>7</sup> Such an approach seems to run

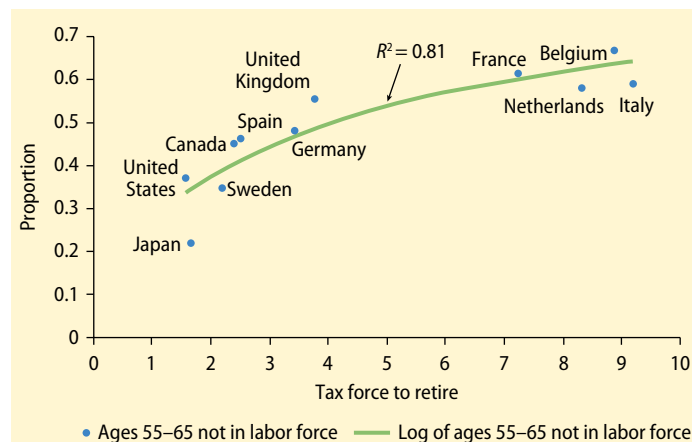
counter to other policies designed to stimulate employment at older ages in Japan, and many OECD and transition countries have moved away from it.

For developing East Asian and Pacific countries, the bigger work disincentive in pension systems lies in early retirement provisions, which in a number of countries (for example, China, the Philippines, and Vietnam) provide strong financial incentives to retire earlier than official pension ages, as discussed in chapter 5 of this report. In contrast, Japan and Korea (along with a number of OECD countries, including Canada, the United Kingdom, and the United States) structure accrual and other benefit rules to incentivize retirement after the official age (Feifs et al. 2013). A further factor at play is retirement age, which is discussed below.

East Asian and Pacific countries at all income levels can take lessons from OECD experience (including in East Asia and Pacific) on the importance of minimizing “tax force to retire” (that is, the implicit tax on work over a certain age). As shown in figure 4.4, in OECD countries with the lowest tax force to retire, fewer than 40 percent of men ages 55–65 are out of the labor force, whereas that share rises to as high as two-thirds in countries with the highest tax force to retire (for example, Belgium). Japan does particularly well on this measure, with very low tax force to retire and only about 20 percent of men ages 55–65 out of the labor force. The negative impacts of high tax force to retire can already be seen in the formal sectors of some countries in developing East Asia and Pacific (for example, China and Vietnam), so avoiding high tax force to retire will be important for all developing countries in the region as they reform their pension and tax systems.

In contrast to various incentives in East Asia and Pacific to extend working lives, some policies and practices *hinder* demand for older workers, such as seniority wage systems. As in many countries, East Asian and Pacific countries have inherited seniority-based wage systems that automatically increase pay with age, independent of performance. Absent much

**FIGURE 4.4 Tax force to retire is strongly correlated with labor force participation of older men in OECD countries**



Source: Gruber, Milligan, and Wise 2010.

Note: OECD = Organisation for Economic Co-operation and Development.

higher productivity of older workers, this system will make older workers less sought after in the labor market and will constrain efforts to extend their working lives. Evidence from OECD countries finds that seniority wage systems have a strongly negative impact on hiring of workers ages 50–64, a finding confirmed in firm-level data (Daniel and Heywood 2007; OECD 2011). On the basis of an early 2000 survey of employers in 10 East Asian and Pacific and OECD economies, East Asia and Pacific showed higher-than-average reliance on seniority wage setting, particularly in Japan and Taiwan, China (Lowe et al. 2002). Although the differences are not dramatic compared with other OECD countries, employers in China and Korea, for example, were notable for thinking that seniority should be more important in wage setting in the future.

Richer East Asian and Pacific economies are trying to reduce the influence of seniority in wage setting and increase that of performance in a variety of ways that offer lessons for other countries in the region. Box 4.4 discusses recent reforms of seniority wage systems in Korea and Singapore and the contrasting example of Japan. In the first two cases, sensibly designed reforms are being adopted slowly by firms but show potential. Developing

#### BOX 4.4 Reforming seniority wage systems in the Republic of Korea, Singapore, and Japan

The Republic of Korea, Singapore, and Japan offer examples of efforts to reduce the role of seniority in wage determination.

Korea introduced a so-called wage-peak system from 2005, which incentivized firms to adopt more performance-based wage systems and conduct productivity-based collective bargaining. The government has disseminated industry-specific performance-based compensation models and actively promoted the new system through media, awards, and the like. This strategy has been supported since 2006 by allowances for firms adopting such measures, which were extended in 2011 to employers who extended their firm-level retirement age and adopted measures such as flexible work and reemployment after retirement (OECD 2012). Although adoption has been relatively slow (only about 12 percent of firms had adopted the wage-peak system by 2011), the pace of demographic transition and market forces are strengthening incentives to adopt it. Several large employers have already adopted the system: Samsung, for example, reduced worker pay by 10 percent annually after age 55 to increase the relative attraction of older workers. The policy is not uncontroversial, however. The system has been a subject of dispute between government, organized labor, and employer representatives during 2015.

Singapore has for many years aimed to increase the flexibility of wage setting and its links to productivity growth and economic conditions, starting with its “flexi-wage policy” from 1986. More recently, it has introduced financial grants to firms that move away from seniority-based wage setting. This is part

of a broad set of incentives to firms to hire or retain older workers.

Japan has taken a different route to the challenge of seniority wage systems. Japan has to date seen most experimentation in reduction of seniority wages happen at firm level, though it is also making efforts in the public sector to flatten wage-to-age schedules. Since the 1990s, the importance of age-based pay within base-pay setting has seen a gradual reduction, especially among managers, where emphasis on role-related pay (which within it has an element of performance-related pay) has increased (Conrad 2009). By 2006, about one-third of firms reported relying entirely on role-related pay for their managers, and a further third relied on it for setting 50 percent or more of wages, while around three-quarters of firms reported role-related pay not being the primary driver of nonmanagerial pay (Shakai Keizai Seisansei Honbu 2006). Despite this gradual dilution of seniority pay, the most common approach in response to amendments to the Job Security Law has been for firms to mandate retirement of workers, typically at age 60, and then to rehire them at usually half or less of preretirement wages and on a term contract as a nonregular employee. About 85 percent of companies had established such rehiring systems (Phang 2011). However, initiatives exist at the firm level to reduce the wage-age link. One large Japanese firm interviewed for this report has changed the entire wage-age curve within the firm, creating budget space for rehiring and adequately compensating older workers by flattening the age-wage trajectory for workers in their 30s and 40s.

*Source:* Sen 2014.

countries are also trying to increase the role of performance-based pay in many cases, for example in China, where teachers have had an increasing element of performance pay in recent years.

A second significant policy factor in the formal sectors of East Asian and Pacific countries is retirement age policy. This is discussed in chapter 5 of this report in terms of fiscal sustainability and pension adequacy, but it also has a clear labor market dimension, as found in chapter 2 with respect to pension

availability and retirement. Evidence from around the world, including developed and developing East Asia and Pacific, finds evidence of significant impact of retirement age on withdrawal from work, effects which in East Asia and Pacific are exacerbated by generous early retirement provisions in countries such as China, the Philippines, and Vietnam.

Richer East Asian and Pacific economies have pursued a distinctive approach to delaying withdrawal from the labor force, which involves a nuanced interaction of mandates



and incentives. Compared with many other parts of the world, richer red economies in East Asia and Pacific have taken a creative approach to the issue of retirement age and stimulating longer working lives. The first element of this approach is the role of the state and firms. Although the state mandates minimum retirement ages (and imposes mandatory retirement in the public sector), firms have a greater role in setting firm-specific retirement in countries such as Japan, Korea,

and Singapore. This is also true in Indonesia, which has not had a mandated retirement age (Giles, Wang, and Cai 2012). The second element of the approach is that firms are given flexibility in *how* they extend working lives over specified minimum ages, and in general they seem to prefer programs of continued employment rather than raising the firm-level mandatory retirement age itself. The approach, most elaborated to date in Japan, is outlined in box 4.5. It also provides

#### **BOX 4.5 East Asia and Pacific's distinctive approach to retirement age and continued work**

Richer East Asian and Pacific economies have exhibited a distinctive but still evolving approach to the issues of mandatory retirement ages and promotion of longer working lives. Japan is a key example of the mixture of mandates with flexibility. The Act on Stabilization of Employment of Elderly Persons 2012 obliges employers to do one of the following: (a) raise the mandatory retirement age from 60 to 65; (b) introduce a continued employment system to ensure that all employees who desire to work remain in the workforce until age 65; or (c) abolish the mandatory retirement age at firm level. The aim is to improve the opportunities for older workers to continue their career until at least pensionable age (65). The contract for this work differs from that covering work prior to retirement age. In addition, when a system for continuous employment is introduced in an enterprise, the standard for treatment of older persons can be decided through a formal labor-management agreement. As of mid-2012, 82.5 percent of companies had adopted the continued employment system, and few have taken measures to raise or abolish the mandatory retirement age system (MHLW 2013).

The statutory retirement age in Singapore was age 60 at the introduction of the Retirement Age Act in 1993. In 1999, it was raised to 62, with the long-term objective of increasing the retirement age progressively to 67. In an effort to encourage employment of more older workers, however, in 2007 the Tripartite Committee recommended reemployment instead of urging a higher statutory

retirement age. The adoption of reemployment as a measure is inspired by labor practices in Japan and is believed to be more useful in raising the effective retirement age while enhancing mutual benefits because it allows for more flexibility in work arrangements as well as wage and benefit adjustments (Phang 2011).

The Republic of Korea is an interesting example of mandate and incentives shifting over time with respect to retirement age. In Korea, retirement ages historically have not been mandated by law, but employment laws have allowed firms to set mandatory ages. Government employees face mandatory retirement. One feature of pension eligibility traditionally has been an imperfect correspondence between mandatory retirement age and the age at which pension-eligible retirees may start receiving pension benefits. The national pension scheme does not begin paying benefits until age 60, yet a significant share of employees until recently faced mandatory retirement at age 55 (Cho and Kim 2005). The government over time has introduced various measures to encourage firms to voluntarily extend their mandatory retirement age. The Act on Prohibition of Age Discrimination in Employment and Aged Employment Promotion was adjusted in 2008, so that the retirement age an employer sets should be 60 or over. Firms with 300 or more workers must report their firm-specific mandatory retirement age each year to the Ministry of Employment and Labor, and the ministry may request employers to raise the minimum if it is below 60. However, this

*box continues next page*

#### **BOX 4.5 East Asia and Pacific's distinctive approach to retirement age and continued work (continued)**

monitoring-based approach was considered not to be achieving sufficiently rapid results, and in 2013 the act was amended to require firms to set minimum retirement ages of at least 60. The amendments will come into effect from 2016 for large firms and from 2017 for firms with fewer than 300 employees and central and local governments.

Korea also uses age-specific quotas to induce longer working lives in firms having 300 permanent employees or more. Those firms are required

to employ older people above the industry-specific employment quota for elderly workers and to submit a status report each year. The employment quota is set by the standard employment rate of older workers, which varies between 4 percent and 42 percent by industry and occupation. The Ministry of Employment and Labor may request firms to formulate and submit plans for implementation of the standard employment rate when they fall below that standard.

an interesting case of industrial relations in parts of East Asia and Pacific, whereby trades unions, employer associations, firm management, and government aim to develop nuanced policies that reduce the social conflict often engendered by economywide retirement age increases in other parts of the world.

Complementing retirement age policy have been initiatives to promote flexible work and a “glide” into retirement, although these have had limited impact in East Asia and Pacific to date. As shown in chapter 2 of this report, when workers in East Asia and Pacific (at all country income levels) continue work into older age, they often tend not to reduce hours significantly until well into their 70s. This finding contrasts with patterns in some OECD countries, where flexible work arrangements have been promoted to encourage greater participation of both older workers and women. The United Kingdom, for example, has achieved some success in extending working lives through this route, but in Germany the impacts have been more limited because of negative perceptions about part-time work (EC DG-ESAE0 2012). Japan and Korea have made efforts to reduce the average working week, which remains very high by OECD standards, though progress is challenging. In response, Korea in 2011 introduced subsidies for firms that

reduced average working hours and a subsidized program that allows older workers to combine paid work and voluntary activities at social enterprises and nongovernmental organizations (though take-up has remained low) (OECD 2006, 2012).

#### **Promoting immigration into aged East Asian and Pacific economies**

The potential for migration to mitigate the labor force impacts of aging across East Asia and Pacific is significant and would present a “win-win” for both sending and host countries.<sup>8</sup> As in other parts of the world, immigration policy is a sensitive issue and one that requires careful brokering of consensus in countries potentially involved to ensure its sustainability and good outcomes for both migrants and their hosts. Rapid aging, however, may provide increased impetus for migration policies that can be beneficial for both sending and host countries. Opinion poll evidence from Japan and Korea presented in chapter 3 of this report suggests that populations in rapidly aging East Asian and Pacific societies increasingly realize the desirability of raising historically low immigration rates. China has benefited from this economic phenomenon in a different way with the mass internal migration of



young rural workers to higher-productivity work in urban areas. The necessity of immigration for East Asian and Pacific economies with older populations is reflected in the words of the late Singaporean Prime Minister Lee Kuan Yew (2012), according to whom “in the future we will have to depend on immigrants to make up our numbers, for without them Singapore will face the prospect of a shrinking workforce and a stagnant economy.”

In both host and sending countries in East Asia and Pacific, enormous variation exists in the scale of migration. In terms of emigration, several countries are among the most important points of origin across the globe. For example, more than 4.3 million Filipinos are working abroad, followed by 2.5 million Indonesians and 2.2 million Vietnamese. Yet because of the large populations of those countries, emigration accounts for only between 1.1 percent and 4.6 percent of their populations (table 4.1). In contrast, emigration is critical for several Pacific Island countries, such as Samoa and Tonga, where emigrants make up 67 percent and 45 percent of total population, respectively. Although a large portion of these emigrants stay within the region, a significant number go to other parts of the world, such as the Persian Gulf, Australia and New Zealand, and North America.

In terms of immigration, several economies in East Asia and Pacific display high levels, whereas others are among the lowest receiving countries globally (table 4.2). In Australia and New Zealand, historically important migrant-receiving economies (mostly permanent immigrants), around a quarter of the population was born abroad. Singapore and Hong Kong SAR, China, (often temporary immigrants) have even higher levels at about 40 percent. Another important case is Malaysia with significant temporary low-skilled migration from countries such as Bangladesh, Indonesia, and the Philippines. In contrast, Japan and Korea have minimal immigration, at less than 2 percent of their total populations. Overall, large portions of migrants in East Asia and Pacific originate from within the region, a situation that is likely to be reinforced with

**TABLE 4.1** There is enormous variation in the importance of emigration in East Asian and Pacific countries

*Number and percent of total population emigrating in selected East Asian and Pacific countries as of 2010*

Origin	Emigrants (thousands)	Emigration rate (% of population)
Indonesia	2,502	1.1
Philippines	4,275	4.6
Samoa	120	67.3
Tonga	47	45.4
Vietnam	2,226	2.5

Source: World Bank 2013a.

**TABLE 4.2** The share of immigrants ranges from very low to very high by global standards in East Asia and Pacific

*Immigration to selected East Asian and Pacific economies*

Destination	Immigrants in 2010 (thousands)	Immigration rate in 2010 (% of population born abroad)
Australia	5,522	25.7
Hong Kong SAR, China	2,742	38.8
Japan	2,176	1.7
Korea, Rep.	535	1.1
Malaysia	2,358	8.4
New Zealand	962	22.4
Singapore	1,967	40.7
Thailand	1,157	1.7

Source: World Bank 2013a.

labor market liberalization in the context of wider economic integration among members of the Association of Southeast Asian Nations.

The fertility and household formation behavior of migrants is a critically important and rapidly growing research area.<sup>9</sup> Evidence shows that the speed with which migrants adapt to the social norms of the destination society depends on personal characteristics of the migrants as well as cultural proximity between origin and destination countries, such as attitudes on gender preferences, sexuality, and marriage. In aging societies, the critical issue is the number of children migrants will have and its determinants. Widespread evidence exists that migrants who arrive before adulthood have fertility behavior that is indistinguishable

from natives. For those who arrive at a later age, Kahn (1988) shows that highly educated migrants have almost identical fertility behavior as natives of the destination. Migrants from neighboring countries or with similar cultural backgrounds, regardless of age at migration or education, have almost identical fertility patterns. All of the evidence shows that assimilation is completed, at the latest, with the children born in the destination, if not with the migrants themselves. The impact of migrants on the overall fertility level of the destination seems to be, at best, a medium-term phenomenon.

Although the impact of migration on migrants' own fertility behavior is a critical issue, migration may also affect the fertility behavior of *natives* when large numbers of migrants are involved. Among the main determinants of fertility behavior are the opportunity costs of having children for women and how migration affects these costs. More specifically, availability of migrant workers for household services as nannies and maids is known to affect the labor force participation and fertility decisions of women in destination countries (Cortés and Tessada 2011). This issue is especially relevant for Singapore and Taiwan, China, which host significant numbers of female migrant workers.

Host economies in East Asia and Pacific exhibit a mix of supply- and demand-driven migration systems. A supply-driven immigration system selects workers based on their human capital credentials (education and experience), and migrants do not need prearranged employment contracts. Admission is normally granted on a temporary basis but with high likelihood of eventual permanent residency and citizenship. Quotas set by central authorities limit the total annual intake. Australia is an example of such a system in East Asia and Pacific. In a demand-driven system, migrants normally enter the host country with prearranged employment contracts. Employers are generally required to obtain permission from the government beforehand and to show that no native worker can or is willing

to fill the vacancy in question. Admission is granted on both permanent and temporary basis, but the conditions to "import" a low-skilled worker are normally more stringent and residency privileges are less permanent than those for skilled labor. The overall intake is again controlled by quotas or other instruments. Korea, Malaysia, Singapore, Thailand, and Taiwan, China, are examples of such systems in East Asia and Pacific.

The most common policy tool across the region and the world in managing immigration flows is quotas, and less common but rapidly expanding tools are levies or taxes. Many key destination countries implement quantitative limits on the number of visas issued for migrants. These quotas can be specific to education levels, occupations, or origin countries. They can be modified frequently or be set at a certain level for years, regardless of changing needs and conditions. Under the levy approach, either the employees or the migrants are required to pay a specific per worker tax to the government. This tax can be imposed annually or collected at the issuance of the employment visa or upon entry. Again, the levies can vary depending on the education level, the occupation, or the sector of employment of the migrant. In recent years, countries such as Singapore have implemented levies that are employee specific and depend on the share of foreigners in the firm's total labor force. To discourage employment of migrants, firms with higher shares pay higher per worker levies. The quota and levy distinction closely resembles the quotas-versus-tariffs distinction in international trade. Over time, quotas have been removed or replaced by tariffs as the latter are observed to be more flexible and economically efficient, since they lead to collection of taxes rather than to the surplus being captured by the quota permit holder. The same economic benefits would be realized in the migration context, but political and public opposition to migration usually prevents full removal of quantitative restrictions.

Origin countries can also play an important role in enhancing the benefits of migration for all parties involved by implementing effective and efficient policies. Among the roles that these governments can play are improving informational efficiencies in the system, enforcing contracts, and protecting migrants' rights. Informational problems are prevalent in migration. Among the key predeparture policies is supporting and overseeing the recruitment process. The first step is providing accurate information to potential migrant workers. Creating information centers and having nongovernmental organizations involved in the process can generate significant benefits. Regulation of recruitment agencies through effective policing and enforcement and increased competition are critical.

The main concern of origin governments should be to protect the rights of their citizens abroad while finding appropriate employment opportunities for them. These dual aims require close coordination of different government agencies, such as departments of education, labor, and foreign affairs. The Philippines Overseas Employment Administration (POEA) has been relatively successful in designing policies that generate long-term benefits. In 2010, around 1.5 million workers registered through POEA before leaving to work in more than 150 different countries. One of the key features of POEA is the licensing of more than 1,000 recruitment agencies, which enables the government to prevent abusive practices by both these agencies and potential employers. POEA is able to protect the rights of the workers from the first stages of the migration process until they return home. The sister organization, the Overseas Workers Welfare Administration, collects contributions from the migrants to fund predeparture training programs and life insurance schemes as well as to operate welfare centers abroad. Finally, the Department of Foreign Affairs coordinates the activities of migration-related agencies through a network of labor offices attached to consulates. Such coordinated action leads to better

protection of workers while they are abroad, helping them maximize the long-term economic and social benefits for both the migrants and their families. Other countries implement similar programs with varying degrees of success (see Ahsan et al. 2014).

Encouraging migration that maximizes benefits for both host and sending countries requires policy action in a range of areas, and practice from within East Asia and Pacific already offers lessons. A recent World Bank report (Ahsan et al. 2014) has analyzed challenges, market failures in need of public policy focus, and policy implications and options for stimulating migration in East Asia and Pacific in greater detail (see also Adams and Ahsan 2014). The summary findings of Ahsan et al. (2014) are therefore reiterated in table 4.3 and provide a broad framework for action. Details on specific recommendations and good practices are provided in that report and in Özden and Testaverde (2014).

## Policy effects on the labor force

Even if sensible policy responses raise participation rates, the question remains whether they will be sufficient to compensate for the declining share of working-age population. The following section examines this issue using a simple simulation framework looking at red and orange economies, for which the shrinking working-age population is a pressing challenge (see box 4.6 for assumptions underlying these simulations).

For both the upper- and middle-income countries shown, the biggest impact on labor force participation is from increasing female labor force supply; for China and Thailand, increasing the participation of older people also has significant potential (figure 4.5). For red economies, significant scope exists to increase female labor force supply through a gradual convergence toward male participation rates, whereas the potential for labor force growth from older workers is more modest because of their already high participation rates. For China, in particular, increasing both elderly

**TABLE 4.3 Policies to maximize the benefits of migration in East Asia and Pacific for sending and receiving countries**

Issue or market failure	Causes	Policy implications and options
<i>Objective: Meet labor shortages in economy through well-targeted migration programs</i>		
Labor shortages in certain sectors and “dirty, dangerous, and demeaning” jobs are caused by segmented labor markets.	Higher education of native workers, higher reservation wages, low geographic mobility, and aging create labor shortages and labor market segmentation.	Formulate a clear migration policy based on comprehensive consultations with affected sectors and assessment of labor shortages in industries, occupations, and regions. Policy should recognize gains and the need to enlist cooperation of labor-sending countries and employee firms through regional and bilateral labor agreements.
<i>Objective: Address possible adverse labor market impacts of migrant labor on native unskilled workers</i>		
Social returns of migration are less than private return to firms.	Higher profits made by firms are not shared with the economy although migrant workers have a social presence. Lower any possible social costs by adding a cushion against lower wages and increasing unemployment. Although firms profit, the economy can suffer from the use of less productive, labor-intensive technologies. Migrant workers use public facilities and social benefits, crowding out local citizens.	Ensure that foreign-worker levy is charged to and borne by employing firms, not by workers. Ensure that minimum wage or minimum-wage-indexed thresholds and benefits for migrant workers are used to prevent excessive lowering of wages or a general deterioration in working conditions. Provide job training, retraining, and education for native workers to upgrade their skills. This will probably happen normally, but government assistance can accelerate the process. Ensure labor market flexibility to facilitate mobility of native workers from less productive to more productive occupations. Wage subsidies and hiring bonuses can be provided to that end. Improve climate for investment and technology innovation and retention of professional and skilled labor. Provide job training and technical upgrading for workers to match demand in more skilled occupations. Provide normal fiscal incentives to firms for innovation and investment in new technology. Enable migrants to join and contribute to social security; make benefits and public facilities accessible to documented workers who also pay taxes.
Social and private returns are lower because of regulatory and information failures.	Poorly regulated recruitment agencies and rent-seeking lead to defrauding of migrant workers and excessive importation of foreign workers. Workers are not adequately informed about their rights and working conditions.	Ensure workers receive orientation about rights and obligations, certified by recruitment firms and employers. Ensure minimum capital experience thresholds for recruitment firms. Standardize, monitor, and enforce contracts between employers, recruitment agencies, and workers. Take advance deposits from recruitment agencies and employing firms to use as penalties against abuse of migration laws through defrauding workers or violating contracts.

Source: Ahsan et al. 2014.

and female labor force participation has significant potential to stave off what is otherwise a significant decline in labor force size. Thailand also has potential from both channels, although less so for elderly participation.

Permanent or temporary migration also has potential to mitigate the decline in

working-age population in richer East Asian and Pacific economies. Figure 4.6 shows the impact of permanent and temporary migration scenarios on the size of the labor force in destination economies relative to the baseline case and the enhanced female and older-worker participation scenarios. The impact of increased female participation continues

### BOX 4.6 Assumptions underlying labor force scenarios

The scenarios span the period 2010–40 (2010–50 for migration) and combine population projections from the 2012 revision of the United Nations *World Population Prospects* (UN 2013) with labor force participation data from the International Labour Organization's LABORSTA database (ILO 2011). The assumptions for the base case and alternative scenarios are as follows:

- *Base-case scenario.* The International Labour Organization publishes male and female participation rates for each five-year age group from age 15 and average participation for individuals ages 65 and older. Taking these age and sex-specific participation rates as given at 2010 levels and combining them with official population projections implies that the projected changes in the national labor forces are entirely determined by the population age structure projections for 2010 to 2040.
- *Convergence for women.* The convergence scenario assumes that female labor force participation grows at an annual rate of 1/40th of the 2010 difference between men and women. Although women's rates are assumed to converge toward male levels in 2050, the gender gap in participation will not be eliminated by the end of the period in 2040.
- *Increasing participation by older workers.* These projections assume increased participation for populations ages 60 and older, where convergence to the maximum rate in 2050 is determined differently for the red and orange groups. For the red group, the participation rate for older men and women is assumed to gradually converge to the current Japanese rates for workers ages 60 and older. For the second group of aging countries, the elderly participation rate will move to current Indonesian rates for workers ages 60 and older. No scenarios were estimated for the group with the lowest share of older workers: the Lao People's Democratic Republic, Myanmar, Papua New Guinea, the Philippines, and Timor-Leste.
- *Migration scenarios—permanent and temporary.* With permanent migration, newly arriving immigrants are assumed to be ages 25–35 and to constitute 10 percent of the labor force of destination countries in that age group. The assumption is based on the current levels observed in many countries that accept mostly permanent migrants, including the European Union and the United States. Migrants are assumed only to arrive in that age group and never to leave. In addition, migrants adopt the fertility, mortality, and labor force participation patterns of natives. The temporary migration scenario assumes that new migrants constitute 20 percent of the labor force between ages 25 and 35 but that migrants stay for only 10 years (with a 100 percent labor force participation rate) and then return to home countries. After 10 years, a new cohort of the same ages 25–35 arrives.

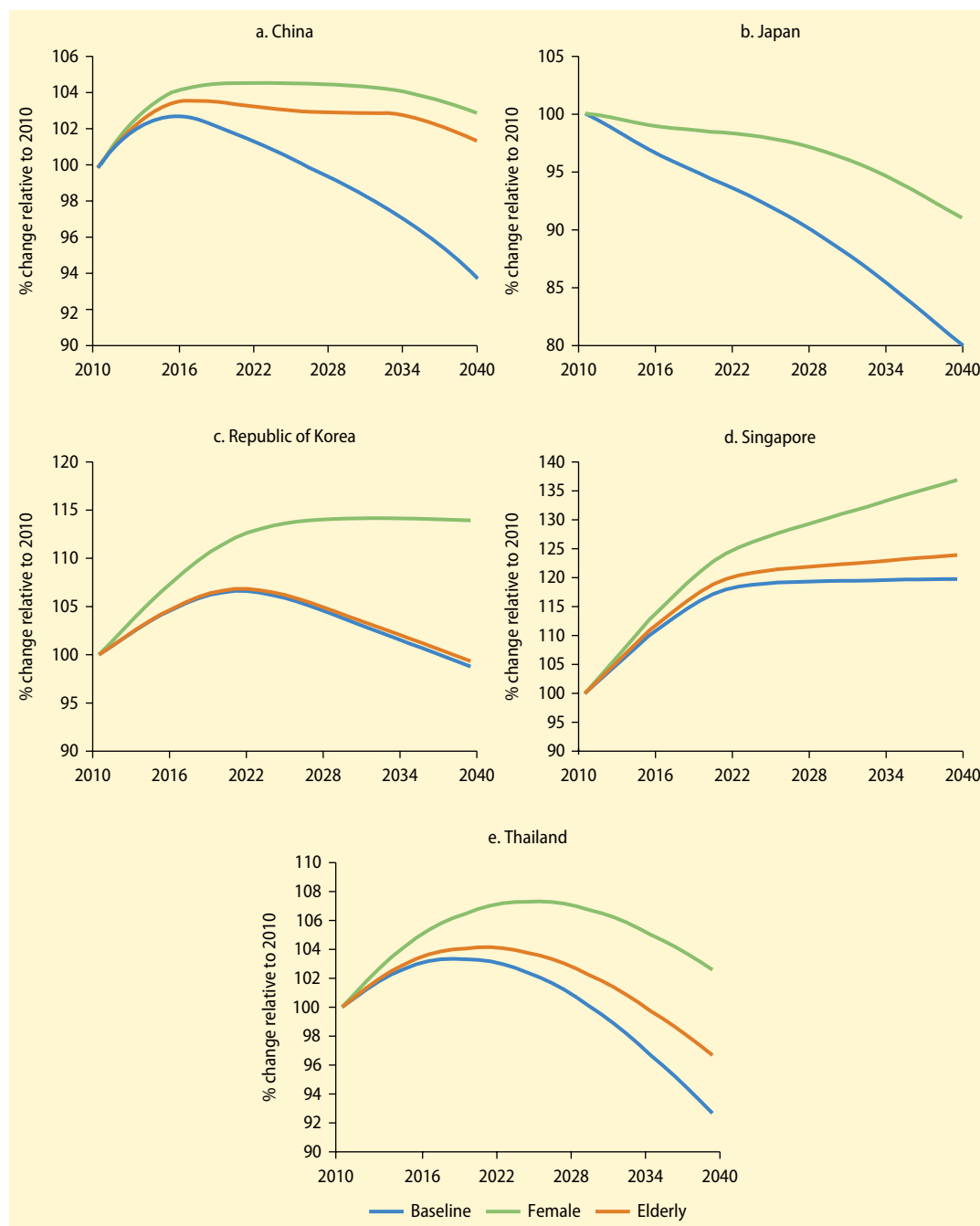
to be the most significant in the long run for the overall size of the labor force in destination countries. At the same time, both types of migration increase the labor force size in host countries considerably in the short run and are superior in this time frame to effects from higher female and elderly labor force participation rates. Temporary migration leads to the largest immediate increase in the labor force in destination countries because the arriving cohort is bigger and temporary migrants have higher labor force participation rates.

However, within 20 years, the permanent migration scenario dominates as migrants settle in host countries. The cumulative nature of permanent migration has a larger impact in the long term, almost twice that from temporary migration. Over time, as the migrants age and retire, the total labor force again declines, even with migration.

The impact of migration on the origin countries is quite different because those countries have younger and expanding populations. The initial decline is very similar under both

**FIGURE 4.5** The potential channels for mitigating labor force decline vary across aging countries in East and Southeast Asia

Percentage changes in labor force size relative to 2010 baseline from increases in female and elderly labor force participation



Source: World Bank estimates in Flochel et al. 2014.

scenarios for the first two decades, but the gap widens over time (figure 4.7). Permanent migration leads to a decline of about 5 percent in the labor force by 2050 while the impact of temporary migration is about half that. Given the growth in origin-country labor forces during that period and the immediate benefits of remittances to the origin countries, such effects appear manageable. Thus both host and origin countries appear to enjoy clear gains from increased regional migration (Özden and Testaverde 2014).

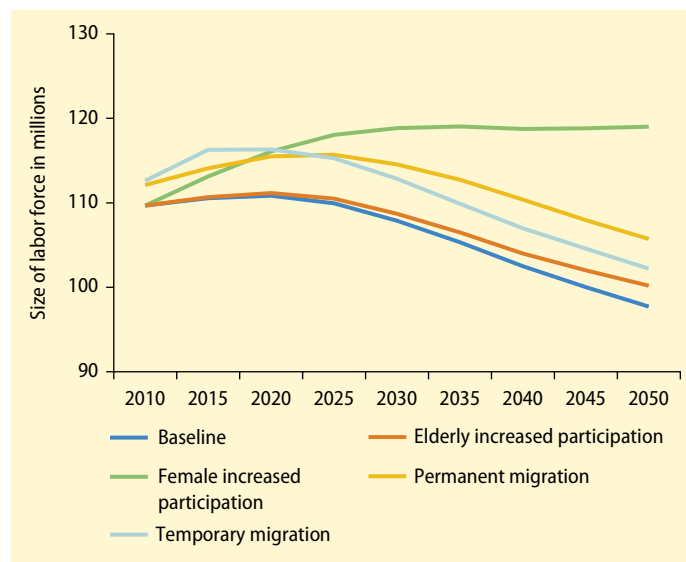
In summary, significant potential exists for higher participation to boost the size of the workforce in East Asian and Pacific countries most affected by aging. The potential for increased employment can be realized by weakening barriers to work for women, the elderly, and migrants, all of which add up to a countervailing force in dampening and, in some cases, even overturning the decline in the labor force predicted in the base-case scenario. Yet activation of higher labor force participation provides only a temporary “shot in the arm” that delays the inevitable decline in labor supply from aging. A more sustained response to aging societies can be achieved only by improving growth rates of human and physical capital and total factor productivity.

### Upgrading skills of older workers and integrating strategies

As noted in chapter 3 of this report, East Asia and Pacific is in a relatively solid position with respect to rapid improvements in its human capital stock in recent decades, but lifelong learning systems remain underdeveloped. Despite the impressive improvements in educational attainment, older workers in many developing East Asian and Pacific countries face significant challenges: for example, those who had compromised education in childhood caused by conflict or sustained civil disturbance. Evidence from the OECD Programme for the International Assessment of Adult Competencies in Japan and Korea also shows low rates of on-the-job training for middle-aged and older workers relative

**FIGURE 4.6 Greater participation by women, older people, and migrants can mitigate the projected decline in the total labor force in richer East and Southeast Asian economies**

*Projected changes in labor force size of destination economies with changes in female, elderly, and migrant labor force participation*

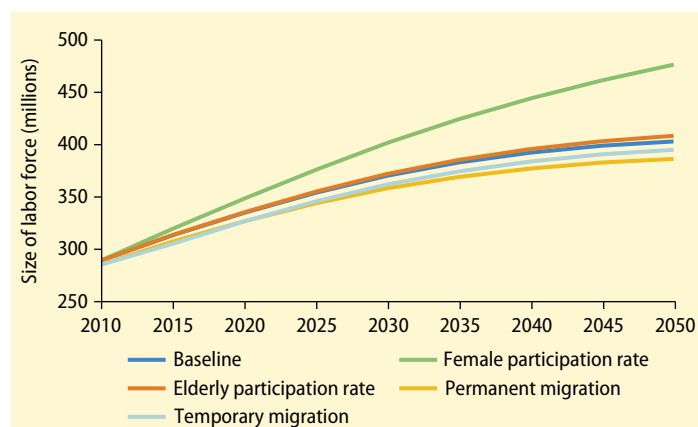


Source: World Bank estimates in Özden and Testaverde 2014.

Note: Destination economies are Hong Kong SAR, China; Japan; the Republic of Korea; Malaysia; and Singapore. Sending economies are Cambodia, Indonesia, Lao PDR, Mongolia, Myanmar, Papua New Guinea, the Philippines, Thailand, Timor-Leste, and Vietnam. Green line shows increase in labor force relative to baseline when women participate at same level as men. Red line shows increase given increased labor force participation by the elderly. Orange line shows increase given migration of 10 percent of labor force ages 25–35 (migrants stay permanently). Light blue line shows increase given temporary increase in migration of 20 percent of labor force ages 25–35 (migrants stay 10 years). Dark blue line shows the baseline.

**FIGURE 4.7 Migration leads to a 5 percent decline in the total labor force size of the migrants’ origin countries**

*Aggregate labor force of Cambodia, Indonesia, Lao PDR, Mongolia, Myanmar, Papua New Guinea, the Philippines, Thailand, Timor-Leste, and Vietnam*



Source: World Bank estimates in Özden and Testaverde 2014.



to OECD averages and contrasts with countries such as the United States, which exhibits more equal access across the work life cycle (figure 4.8). Apart from this transition challenge, a broader challenge exists of building lifelong learning systems for continuous skill upgrading of workers across the life cycle. Globally, education, skill, and labor systems are aiming to evolve from a traditional pattern of study, work, and retirement to one where skill upgrading and work lives blend more seamlessly and the work-retirement divide becomes more blurred.

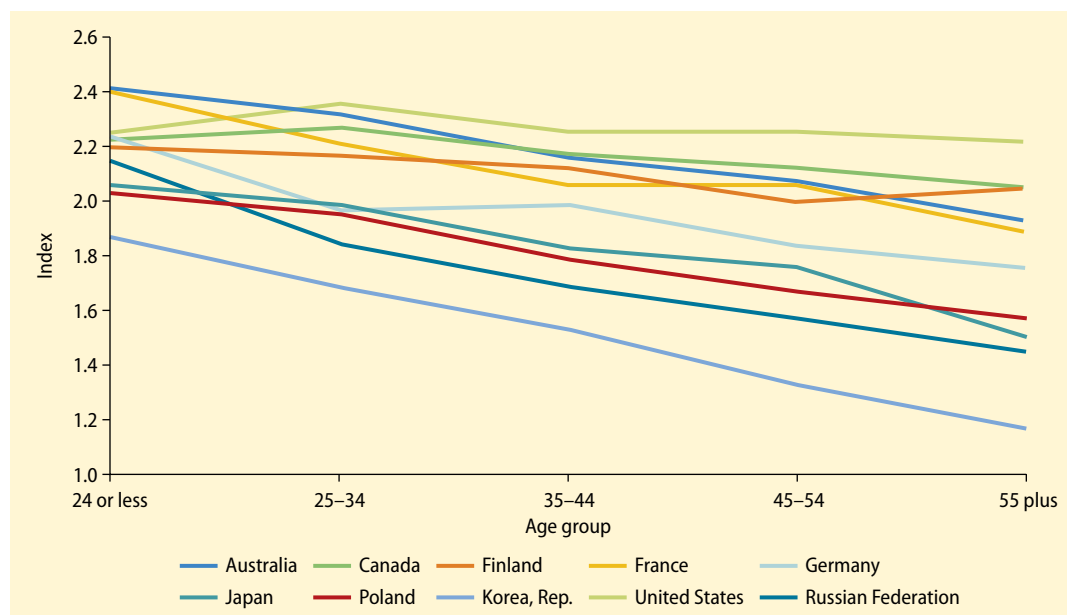
Australia, high-income countries of East Asia and Pacific, and Europe have adopted a variety of measures that subsidize training and lifelong learning activities for older workers to improve their productivity and employability. Globally, countries face challenges in uptake of training by older workers relative to others, and examples from East Asia and Pacific suggest that the challenge may be even more acute.<sup>10</sup> This situation has led to a

gradual increase in targeted training schemes for older workers. Co-financing or providing government subsidies for training programs is a popular measure used by Australia and several countries in Europe to incentivize training and skill building for older workers. Sweden provides an innovative example of a “learning account” to which both employers and employees can make tax-exempt deposits for training. Such measures are driven by the need to improve employability of older workers, since schemes to improve training rates across the adult population have the lowest take-up among older workers (EC DG-ESAE0 2007, based on the European Commission’s Ageing and Employment: Identification of Good Practice study; OECD 2006).

Richer East Asian and Pacific economies have also instituted training programs for older workers, both on a targeted basis and within the context of broader programs. The government of Singapore in Budget 2014 announced a S\$500 million top-up to its

**FIGURE 4.8 Japan and the Republic of Korea show low rates of on-the-job training for middle-aged and older workers relative to countries such as the United States**

*Index of learning at work by age and country, 2012, selected OECD countries*



Source: Generated from the OECD 2013.

Note: OECD = Organisation for Economic Co-operation and Development. The index is scored on a scale of 0 (lowest) to 4 (highest). Russian data are preliminary and exclude Moscow.



Lifelong Learning Endowment Fund, taking the total size to S\$4.6 billion with a lifelong commitment to continuing education and training to enhance employability, though to what extent older workers are accessing the scheme remains unclear (Government of Singapore 2014). In addition, ADVANTAGE and Flexi-Works Policy grant financial assistance to employers who train older workers. To better reach out to low-wage workers, the government introduced a three-year Workforce Training Scheme that subsidizes 90 percent to 95 percent of absentee payroll and course fee outlay for employers who send their older low-wage workers for training. Low-wage workers are encouraged to go for training to upgrade their skills and improve their employability, upgrade to better jobs, and earn more. Since the Workforce Training Scheme started in July 2010, more than 90,000 Singaporeans have benefited, following the guidance of an old Chinese phrase: 活到老, 学到老 (“live till old, learn till old”) (Government of Singapore 2013; Phang 2011; UNFPA and HelpAge International 2012). In Korea, job training subsidies are paid to employers who provide training opportunities to workers under the Occupational Skill Development Scheme (Phang 2011). More specifically, the scheme focuses on providing training for older people who want to start their own businesses (given the prevalence of self-employment among older workers) or return to rural areas.

As in other parts of the world, participation in training among older workers tends to be relatively low, though how much this is driven by weak demand, employer attitudes, or inflexible supply is difficult to disentangle.<sup>11</sup> This low participation rate can be seen throughout East Asia and Pacific. In Singapore, about 37 percent of workers ages 20–29 undertook training with support of the Skills Development Fund, whereas the share was only 19 percent in the 50–64 age group (Phang 2011). In China, the effect was found to be more pronounced, with a 1 percent increase in age resulting in a 27 percent to 35 percent decline in probability of undertaking training (Mishra and

Smyth 2012). In Korea, less than 10 percent of workers ages 50–64 participated in training of any form (and fewer older women than men), less than half the rate for other workers, and well below age-specific rates of about 40 percent in the United States and Nordic countries (Phang 2011).<sup>12</sup> Part of the issue is simple cost-benefit, with a justified perception that the shorter the remaining working life the more returns to training fall, a factor that has led James Heckman, for example, to suggest that wage subsidies may be a more efficient intervention as workers get older. However, another strain of literature finds significant discrimination against older workers by employers in providing training and a feedback loop whereby some older workers internalize the effect and seek less training (OECD 2006).

“Universities of the third age”—in which skilled older people provide education and skill training for other older people—have proliferated across East Asia and Pacific. Initiated in France, this type of organization has spread to transition and OECD countries and has been taken up in East Asian and Pacific countries such as Australia, China, Malaysia, and Singapore. These mixed programs are oriented toward work-related skills as well as general intellectual enrichment and social interaction, with an aim to provide stimulation and slow cognitive decline (UNFPA and HelpAge International 2012).

Although limited, the global evidence on effects of targeted training schemes on the productivity of older workers is mixed, and more assessments of cost-effectiveness are needed. Assessments from Germany find that training of older workers did not appear to significantly affect productivity among those already working (Göbel and Zwick 2010, 2013). Similarly, in Sweden training for unemployed workers ages 50–64 resulted in regular job placement for only one in eight trainees (OECD 2006). In contrast, placement rates of older trainees in the Czech Republic and Spain were encouraging, with 70 and 50 percent of trainees, respectively, in work 6–12 months after training (OECD 2006).

In East Asia and Pacific, evaluations of initiatives in red economies would be beneficial.

The most notable feature of policies to extend working lives in East Asia and Pacific in recent years has been the adoption of multipronged strategies to promote productive aging. Richer East Asian and Pacific economies have heightened their policy focus on employment of older workers through comprehensive programs combining different types of interventions. Box 4.7 discusses the example of Korea, which mixes incentives for enhancing productivity of older workers, subsidies to employers to retain older workers, and efforts to activate unemployed older workers or those approaching retirement or dismissal. Singapore has adopted a similar range of programs, including

under its Advantage! Scheme; the WorkPro scheme of funding to help employers redesign jobs and work environments to adapt to an older workforce; and the Special Employment Credit and Workfare Income Supplement, which aims to support employers and employees to raise the employability of older, low-wage Singaporeans. Japan has had several packages of measures over the years under its Basic Policy of Employment Measures for the Elderly and the 2012 revised Act on Stabilization of Employment of Older Persons, including wage subsidies, financial support to employers with age-friendly workplaces, dedicated training centers (Silver Human Resources Centers), and employment services (sections for the elderly in Hello Work job centers). These are part of

#### **BOX 4.7 Second Basic Employment Promotion Plan (2012–16) for the aged in the Republic of Korea**

1. Strengthening support for intergenerational job sharing
  - Skilled middle-aged and old retirees will serve as mentors and instructors for young employees at 300 small and medium enterprises, and 1,600 retired experts will be used as “on-site professors.”
  - The job-sharing program, which provides a subsidy of ₩7.2 million per year to firms if they hire youth to fill vacancies that arise as middle-aged and older employees work shorter hours or receive training, will be promoted.
2. Expanding support for older workers to stay longer in their principal jobs
  - Subsidies for the wage-peak system will be increased.
  - Subsidies for extending the retirement age or reemploying older workers will be differentiated based on the length of the extended employment period to encourage firms to keep older workers for a longer period.
  - The coverage of workplace surveys of retirement-age schemes will be extended from those with 300 workers or more to those with 100 workers or more, to prepare for discussions on retirement-age reform.
3. Strengthening support for retirement preparation and skills development
  - Large firms will be required to provide a certain period of preretirement training to their middle-aged and older workers who are forced to leave their jobs involuntarily.
  - Long-serving middle-aged and older workers will be granted the right to ask for unpaid educational leave of one year or less.
4. Expanding support for early reemployment and jobs for the aged
  - Opportunities to participate in the Employment Success Package that links counseling, vocational training, and job placement and to receive on-the-job training at small and medium enterprises will be expanded.
  - Relevant training and funding will be provided to older people who want to start up their own business or return to farming or rural areas.
5. Promoting social contribution and talent-sharing activities
6. Improving systems and infrastructure to cope with an aged society
  - The retirement pension system will be further promoted to ensure old-age income security.

a broader “ageless society” theme of public policy in Japan. Such active labor programs along with reforms of retirement age and continuous employment effectively combine incentives with mandates and give firms considerable latitude for how they comply. The lead from public policy is increasingly being taken by large employers, with companies such as JFE Steel introducing the Senior Expert Program to retain and maximize the experience of workers over age 60 (Shimbun 2015).

## Conclusion

Fortunately, the middle-income countries of East Asia and Pacific can benefit from the lessons of various labor market policies implemented in richer East Asian and Pacific economies. In responding to the challenges of shrinking labor forces and outputs, the experience from East Asian and Pacific countries suggests a set of overarching issues in developing labor market policy responses:

- As supported by the recommendations presented in this chapter, an effective labor market policy response to aging in East Asia and Pacific requires policy action across the life cycle, ranging from efforts to stimulate fertility in countries with older populations to initiatives aimed at extending the productive lives of older workers.
- Attention is needed to policy coherence and trade-offs in trying to mitigate the adverse labor market impacts of aging. Although many interesting and potentially useful initiatives are available to augment the labor forces in aging East Asian and Pacific countries, ensuring that labor market, social security, tax, and other policies all push in the same direction remains a challenge in some cases. Thinking about policy coherence raises potential trade-offs, for example between the economic imperatives of sustaining labor forces and socio-cultural norms around the role of women in society.
- A better understanding of the cost-effectiveness of labor market policies and

programs is needed to inform policy decisions. For many programs aiming to stimulate enhanced labor force participation, very little is known about their employment impacts and cost-effectiveness. As discussed earlier in the chapter, one specific issue is the extent to which policies promoting higher labor force participation are more cost-effective when targeted purely by demographic characteristics such as age or gender or by more general economic characteristics such as unemployment or income level.

- An appropriate balance must be struck between mandates (on employers or workers) and incentives. Emerging experience from East Asia and Pacific suggests that neither approach in isolation is likely to achieve the desired results. A related consideration is the role of public policy and market forces.

## Notes

1. Jones (2009) provides an excellent summary of pronatalist policies in richer East Asian and Pacific economies. See also Tsuya, Choe, and Feng (2009).
2. This finding is consistent with other analysis for Japan (Tsuya 2005, 2008; Tsuya, Choe, and Feng 2009).
3. U.S. Social Security Administration (2015) provides a comprehensive summary of maternity and other insurance benefits in Asia.
4. See Hegewisch and Gornick (2011) on slow take-up of paternity leave in OECD countries. For Japan, see *Basic Survey of Gender Equality in Employment Management*, MHLW (2013).
5. Employer initiatives to promote family-friendly workplaces are based on the 2003 Act on Advancement of Measures to Support Raising the Next Generation of Children and the Basic Act for Measures to Cope with a Society with a Declining Birthrate, the former amended and strengthened in 2014.
6. Presentation of Japanese MHLW to World Bank team, November 2013.
7. The earnings test on pensions in Japan was repealed in 1985 for workers ages 65–69 but reinstated in 2002.
8. This section draws from a background paper by Özden and Testaverde (2014) and the

- World Bank regional migration report for East Asia and Pacific (Ahsan et al. 2014).
9. See Adsera and Ferrer (2014) for an excellent review.
  10. Available evidence suggests that older workers are much less likely to participate in job training programs relative to younger workers. An OECD (2006) report suggests on-the-job training participation rates of workers ages 50–64 to be under 10 percent in Korea and over 40 percent in Denmark, Norway, and the United States. In terms of lifelong learning opportunities, whereas just over 10 percent of Koreans ages 50–64 participated in some form of lifelong learning activity during 2000, the corresponding proportion was about 36 percent in the United States and about 46 percent in Sweden (Phang 2011).
  11. See Mayhew, Elliott, and Rijkers (2008) for a useful discussion of training and employment of older workers.
  12. Japanese MHLW survey findings suggest higher training among older men (36 percent in 2005), though the rate is less than half that among older women.
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# Preparing for an Aging East Asia and Pacific





# Pension Systems and Aging: Reforms for Winning the Race

5

## Introduction

In terms of pension system design, East Asia and Pacific exhibits significant heterogeneity, as reflected in the policy challenges faced by different groups of countries. The pension challenges facing East Asian and Pacific countries vary not only because of their disparate demographic situations but also because of past policy choices and the nature of their labor and capital markets. The richer economies with the largest populations ages 65 and above have achieved wide coverage and tend to be more financially sustainable than most high-income economies of other regions, but they face challenges of pension adequacy and hence challenges of old-age financial protection. The middle-income economies are grappling with the dual challenges of improving the sustainability of their existing or legacy systems and trying to expand coverage to large, uncovered informal sectors. Both challenges are given urgency by the rapid pace of aging. For the poorer and largely young economies, the key challenge is to find an appropriate model that can achieve significant coverage over time, while recognizing that schemes financed by payroll taxes have

proved ineffective in this regard in developing countries.

This chapter describes the current state of pension provision in 15 economies of East Asia and Pacific and explores policy options for the three groups. The first section describes the most important elements of these pension systems and puts them in an international context. The second section then assesses the systems' performance based on three key criteria: pension coverage, spending and sustainability, and adequacy. It also discusses the potential indirect impacts of the pension system on the overall economy. Finally, the third section explores the available policy options, taking into account the very different conditions that characterize the region.

## Overview of East Asian pension systems

This section looks at four elements of overall pension systems across East Asian and Pacific economies: (a) contributory pension schemes that are mandatory for private sector workers but may also cover public sector workers, (b) schemes for civil servants and government employees, (c) supplementary private

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This chapter is based on a background paper by Robert Palacios (2015).

pensions, and (d) noncontributory pensions, or “social pensions.” As shown in table 5.1, all four elements are present in some but not all East Asian and Pacific economies.

### Government-mandated contributory pension schemes

The ultimate objectives of public provision of pensions are twofold: to reduce poverty in old age and to smooth consumption over the life cycle. Globally, a small number of countries (for example, New Zealand and South Africa) focus on only the first objective using budget-financed transfers to the elderly. However, most countries have mandated retirement savings in an attempt to address both objectives. Today, government mandates to save for retirement and usually to insure against death and disability dominate the

global pension landscape. Most countries in East Asia and Pacific have adopted this approach, but how different countries have done so varies widely.

East Asian and Pacific economies can be broadly divided into three groups in terms of the introduction of nationally mandated pension systems relative to demographic characteristics: the globally average adopters, the late adopters, and the global outliers that have yet to adopt a pension system. Figure 5.1 shows the year that different economies introduced pension mandates that applied to most workers in the formal sector rather than to just civil servants, compared with the share of the population over age 60 at the time.

The globally average adopters—China (1951), Japan (1941), Malaysia (1951), Mongolia (1950s), the Philippines (1954), and Singapore (1953)—introduced national

**TABLE 5.1 Combined elements of pension systems in East Asia**

Economy	Social pensions	Mandated savings for pensions			
		Type of scheme	Target benefit	Civil servants	Voluntary pensions
Cambodia	None	None	n.a.	Only	
China	Significant	Defined benefit and defined contribution	High	Parallel	Limited occupational pensions, growing informal sector scheme
Hong Kong SAR, China	Small	Defined contribution	Low	Integrated	
Indonesia <sup>a</sup>	None	Defined contribution	Low	Parallel	Fledgling occupational pensions
Japan	Small	Defined benefit	Low	Integrated	Significant occupational pensions
Korea, Rep.	Significant	Defined benefit	Low	Parallel	Significant occupational pensions
Lao PDR	None	Defined benefit	Low	Parallel	
Malaysia	Small	Defined contribution	Low	Parallel	Some voluntary savings within mandatory provident system plus limited occupational and personal pensions
Mongolia	Small	Defined benefit	Low	Integrated	
Myanmar	None	None	n.a.	Only	
Philippines	Small	Defined benefit	High	Parallel	Limited occupational and informal sector pensions
Singapore	None	Defined contribution	Low	Integrated	Some voluntary savings within mandatory provident system
Thailand	Significant	Defined benefit	Low	Parallel	Limited occupational pensions
Timor-Leste	Significant	None	n.a.	Only	
Vietnam	Small	Defined benefit	High	Partly integrated	

Source: Palacios 2015.

Note: n.a. = not applicable.

a. The government of Indonesia issued Government Regulation No. 45/2015 on the implementation of its National Social Security System (Sistem Jaminan Sosial Nasional, or SJSN) pension plan as this report was being finalized, converting its pension scheme to a hybrid defined benefit and defined contribution scheme.

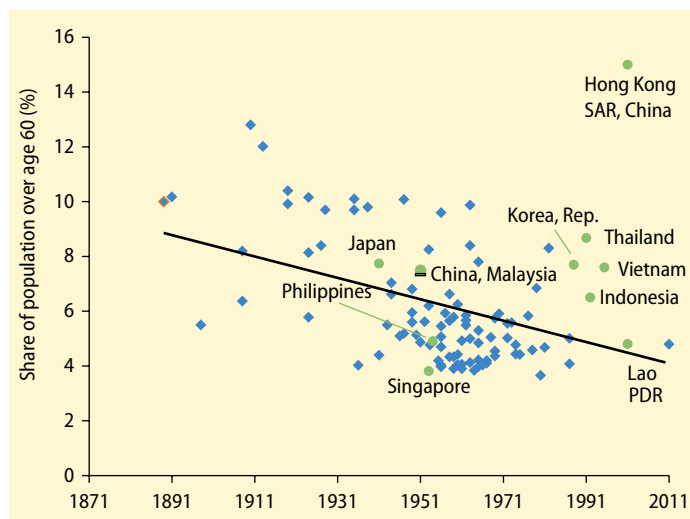
pension schemes relatively early. The timing of the introduction is significant because in defined benefit schemes, generally the longer the pension scheme has been operating, the higher the ratio of pensioners to contributors and the greater the pressure on finances. The late adopters—including Hong Kong SAR, China (2001); Indonesia (1992); the Republic of Korea (1988); the Lao People's Democratic Republic (1999); and Thailand (1991)—introduced their schemes fairly recently and relatively late in terms of their demographic transitions. Vietnam can be assigned to this group because it expanded its original scheme for public sector workers (1961) to the private sector only in the mid-1990s. The late introduction of pensions in this group may be consistent with a reluctance to expand the role of the state. The global outliers—which are not shown in figure 5.1 but include Cambodia, Myanmar, and Timor-Leste, and which are also among the youngest countries in the region—have yet to move beyond civil service pensions.

A second major point of variation across East Asia and Pacific is whether the mandated scheme operates as a defined contribution (DC) or defined benefit (DB) scheme. A number of the region's economies—including Indonesia, Malaysia, and Singapore—have opted for DC schemes managed by the public sector that allow withdrawals for purposes other than retirement, including housing. Variants of this “provident fund” model are also seen in several Pacific Island countries such as Fiji, Papua New Guinea, and the Solomon Islands. The policies resemble mid-century policy developments in India, Nepal, and Sri Lanka, reflecting a shared influence from colonial history. Hong Kong SAR, China, took the DC route half a century later but opted for private, competitive management (although confusingly perhaps, it continued to call it a provident fund). The other East Asian and Pacific economies with mandated schemes have opted for DB schemes.

As a result of these choices, the provident fund countries have not been accumulating large unfunded pension liabilities,<sup>1</sup> though the opposite is true for the countries that have

**FIGURE 5.1 East Asian and Pacific economies can be divided into globally average adopters, late adopters, and global outliers**

*Timing of introduction of national mandated pension schemes*



Sources: UN 2013; U.S. Social Security Administration 2012.

gone the DB route. Workers in publicly managed DC schemes receive only what they have put into their accounts plus investment earnings, and there is a risk that net returns will be too low to generate target benefit levels. In contrast, DB scheme parameters tend not to be as closely calibrated to match contributions with benefits, so their members often receive an implicit return greater than prevailing interest rates, at least they have been during the first decades of the scheme. The major risk for participants in DB schemes is that the government will not be able to keep its promises because of unsustainable parameters. As evidenced by the recent wave of Organisation for Economic Co-operation and Development (OECD) pension reforms, this risk increases as schemes mature.

In the late 1990s, the neat division between DC and DB countries was somewhat complicated by reforms in China and Mongolia. In China, a DC component was added to the DB scheme, effectively replacing part of the DB scheme for workers above a certain age. The intention was to accumulate funds to back the new individual accounts. However, in its decentralized implementation, these funds have not, in the large majority of cases, been

segregated as is normally done in a DC scheme.<sup>2</sup> In most parts of the country, the urban workers' scheme seems in practice to be running on a pay-as-you-go basis. In Mongolia, the concept of notional accounts<sup>3</sup> or notional defined contributions (NDCs) was introduced in 1999 and will affect cohorts born after 1960. The intention was not to build a fund but rather to change the DB formula to reduce future pension liabilities.

In developing East Asian and Pacific economies, indexation of DB pension payments is often not automatic. In addition to different target benefit levels, another important difference is in the way benefits are paid out. The seven DB schemes all pay life annuities. In Japan and Korea these annuities are adjusted annually to compensate for changes in prices, a common practice among OECD countries. In China and Vietnam, adjustments have been made for changes in both prices and wages over the years, but on a discretionary basis.<sup>4</sup> In Mongolia, the Philippines, and Thailand, adjustments are discretionary or ad hoc, and real pension levels can and sometimes do fall, exposing pensioners to inflation risk. In the Philippines, these adjustments have historically tended to track price movements (see Mesa-Lago, Viajar, and Castillo 2011).

Unlike retirees in DB schemes, those in DC schemes are not protected against longevity risk, that is, the risk that a person will outlive his or her retirement savings. With the partial exception of Singapore, the countries with DC schemes allow workers to withdraw their funds at retirement in a lump sum. Recently, Singapore instituted a new policy for the payout stage: at retirement, members of the Central Provident Fund are required to purchase one of two products that mimic annuities through a phased withdrawal (although they are allowed to opt out of this default). This change in policy has helped Singapore better address the issue of longevity risk.

Overall, pension systems in East Asia and Pacific exhibit diverse philosophies with respect to generosity, degree of redistribution, and assumption of risk between citizens and the state. Table 5.2 summarizes several characteristics, including types of schemes, implied benefit targets, and the mode of benefit payment. At one end of the spectrum, the role of government in Hong Kong SAR, China, is limited mostly to supervising the mandated scheme, which aims for modest benefits and is managed privately.<sup>5</sup> The scheme has no government financial commitments and has liberal rules at the withdrawal stage. At the

**TABLE 5.2** Implications of pension scheme designs

Country	Benefit target	Degree of redistribution	Member risk	Risk to government
China	High	Large	Low returns on defined contribution component	Large unfunded liability
Hong Kong SAR, China	Low	Small	Low returns on defined contribution; longevity risk	None
Indonesia	Low	Small	Low returns on defined contribution; longevity risk	None
Japan	Moderate	Moderate	Sponsor risk or default	Large unfunded liability
Korea, Rep.	Moderate	Large	Sponsor risk or default	Moderate unfunded liability
Malaysia	Low	Small	Low returns on defined contribution; longevity risk	None
Mongolia	Moderate	Large	Inflation risk; sponsor risk or default	Large unfunded liability
Philippines	High	Large	Inflation risk; sponsor risk or default	Large unfunded liability
Singapore	Low	None	Low returns on defined contribution component	None
Thailand	Moderate	Moderate	Inflation risk; sponsor risk or default	Moderate unfunded liability
Vietnam	High	Small	Sponsor risk or default	Large unfunded liability

Source: World Bank.

Note: Sponsor risk refers to the possibility that a government may renege on defined benefit promises if the scheme becomes unsustainable.

other extreme, the Philippines and Vietnam provide generous benefits through a DB scheme in which government bears all of the risk and allows a large unfunded liability or financing gap to grow over time.<sup>6</sup> In the table, *sponsor risk* refers to the possibility that, as in the case of the recent reforms in Japan, Korea, and Mongolia, governments may renege on DB promises when schemes become unsustainable.

### Civil service pensions

As in other parts of the world, civil servants in East Asia and Pacific have usually been covered by pension schemes before the rest of the workforce (see Palacios and Whitehouse 2006). In every economy in the region, civil service pensions preceded mandates for private sector workers, often by decades. Japan's civil service pension scheme was introduced in the late 19th century (see Casey 2004). The most recent example is Hong Kong SAR, China, which, after inheriting the British colonial pension scheme for civil servants, waited until 2001 to mandate retirement savings for private sector workers.

Civil service pensions in East Asia and Pacific fall into three distinct groups:

- Countries with separate pensions for civil servants include China,<sup>7</sup> Indonesia, Korea, Lao PDR, Malaysia, the Philippines, and Thailand.<sup>8</sup>
- Economies with integrated pensions for all formal sector workers include Hong Kong SAR, China;<sup>9</sup> Japan;<sup>10</sup> Mongolia; Singapore; and Vietnam following its 2014 reforms. Indonesia also plans to move gradually in this direction, although implementation has not yet started.
- Countries with coverage only for civil servants include Cambodia, Myanmar, and Timor-Leste, which passed its civil service pension legislation in 2012 but has not fully implemented it.<sup>11</sup> Except for Timor-Leste, these separate civil service pension schemes are all DB and are fully mature, with retiring civil servants having earned full pensions and with relatively high ratios of pensioners to active employees.<sup>12</sup>

Civil service schemes in East Asia and Pacific tend to be more generous than those for private sector workers, sometimes significantly so. The relationship between contributions and benefits tends to be more imbalanced from an actuarial perspective than national schemes in the same country. Benefit parameters are more generous, and public sector pensioners are likely to have greater life expectancy at retirement. In some cases, such as in China (prior to changes announced in 2015) and in Myanmar, public sector workers have made no contributions, and pensions are paid directly from the budget. Aside from fiscal pressures caused by these maturing and often generous civil service pensions, the schemes demonstrate the apparent inequity of providing more generous pensions for public sector workers. Although a case may be made for the government providing supplementary pensions as an employer, it is difficult to justify different levels of minimum pensions or implied rates of return on contributions or even different eligibility ages.

Administering separate schemes raises costs to the extent that economies of scale cannot be exploited, especially in countries with a small number of covered workers (see Sluchynskyy 2015). For example, the administrative costs of the Philippine civil service pension scheme were roughly the same as those for the social security system, despite the fact that the latter had seven times as many contributors and beneficiaries. Similarly, the cost per participant was six times higher for Thailand's civil service pension scheme compared with the national scheme. Sluchynskyy (2015) provides the strongest cross-country evidence of economies of scale based on a sample of 104 public pension funds from 87 countries: administrative costs per beneficiary are found to fall by half when moving from 100,000 to 500,000 participants and by another 25 percent with 2 million participants.

Finally, parallel pension schemes may inhibit labor mobility between the public and private sectors, because pension rights typically are not portable.<sup>13</sup> Civil service schemes are almost always DB (Hong Kong SAR,

China, is the exception), and the typical formula rewards the later years of participation disproportionately (known as *backloading*). Given the lack of portability arrangements in national schemes that cover private sector workers, a public sector worker who moves to the private sector suffers a large loss in pension wealth.

For all of these reasons, an increasing number of countries in all regions have started to integrate civil servants into their national pension schemes. Recent reforms in China, Japan, Vietnam, and eventually Indonesia are examples in East Asia and Pacific. Integration presents an important policy question for the rest of the countries that continue to have separate civil service schemes,<sup>14</sup> but integration is particularly urgent in the poorer countries that do not yet have national mandates that apply to private sector workers. Relatively small numbers of formal sector workers and low administrative capacity in these countries suggest that they should seriously consider avoiding parallel systems.

### Supplementary private pensions

The role of private, voluntary pension schemes is relatively limited throughout most of the region. Participation in these schemes typically is driven by tax preferences, and coverage tends to overlap with workers already participating in mandated schemes (with some exceptions among the self-employed). When mandated pension schemes have high target replacement rates and when contribution rates are already high, little room remains for voluntary provision. Another important factor is the share of the population subject to the income tax, which is extremely limited outside of the richer countries.

The situation with regard to voluntary pensions in the region can be summarized as follows:

- The only countries with significant private pension coverage are Japan and Korea with around 23 and 30 percent of the labor force covered, respectively.<sup>15</sup> These countries have relatively modest replacement

rate targets and contribution rates in their mandated schemes, and the majority of workers and employers pay income taxes.

- In China and Thailand, the existing occupational arrangements need restructuring to encourage and incentivize additional voluntary coverage. In China, members of the “enterprise annuity” plan (which are DC accounts) have been given limited tax preferences. Membership is around 18.5 million workers, consisting mostly of public enterprise employees—a small fraction of the overall formal sector workforce. In Thailand, private pension coverage rose to around 7 percent of the labor force in 2014.<sup>16</sup> Thailand has relatively low benefit targets and contribution rates, but few qualify for favorable tax treatment.
- Malaysia and Singapore have attempted to increase voluntary savings through their existing provident fund schemes. The programs offered by Malaysia<sup>17</sup> and Singapore draw few participants—less than 5 percent of those covered by their respective provident funds. This low participation rate is partly the result of already high forced savings rates in those countries, which leave little space for additional voluntary pensions.
- In the rest of the region, private voluntary pensions currently play a negligible role or are nonexistent. In Cambodia, Indonesia, Lao PDR, Myanmar, and Timor-Leste, the enabling conditions for private pensions are not yet in place, and few workers would benefit from tax preferences. The focus should be on reforming the existing public systems of these countries. Vietnam offers scope for launching or developing a voluntary occupational provision targeted at small and medium enterprises as the replacement rates in the public system decline.

### Noncontributory (social) pensions

Globally, the role of social pensions—cash transfers paid to the elderly, financed from the general budget and not linked to prior contributions—has expanded dramatically in the past two decades (see Palacios and



Knox-Vydmanov 2014; Rofman, Apella, and Vezza 2014). To a large extent, this growth can be attributed to frustration with the slow expansion of contributory pension schemes in the face of aging populations.

In East Asia, reliance on social pensions has increased in recent years, although their relative importance in national pension systems varies significantly. Three groups of economies can be distinguished: those with recently expanded social pensions, those that have introduced targeted transfers, and those that have no social pensions, including Cambodia, Indonesia (except a pilot), Lao PDR, Myanmar, and Singapore. China, Korea, Thailand, Timor-Leste, and several Pacific Island countries, including Kiribati, Samoa, Tonga, and New Ireland Province in Papua New Guinea, have recently expanded social pensions to cover the majority of the elderly. Korea and Thailand aim to address the coverage gap left by their recently introduced contributory pension schemes. In the case of Timor-Leste, social pension coverage was made universal at age 60, and benefits were set at a high level relative to local incomes. In contrast, the expansion of social pensions in Thailand was more gradual, taking place over roughly a five-year period until a modest social pension achieved practically universal coverage among the elderly not qualifying for a formal pension. China's recent expansion of coverage for informal sector workers is unique in terms of design and dramatic in terms of the pace of change, as described in more detail below.

Social pensions play a more limited role in economies where targeted transfers to the poor elderly have been introduced, in some cases with relatively high eligibility ages (for example, 77 years in the Philippines). This group includes Hong Kong SAR, China; Japan; Malaysia; the Philippines; and Vietnam, where social pensions are universal for those ages 80 and over but are means tested for those ages 60–79. Mongolia also has a significant and growing number of social pension beneficiaries. As discussed in the next section, benefit levels and eligibility conditions vary significantly across these countries.

## Assessment of the performance of East Asia's pension systems

### Challenges

Pension systems in East Asia and Pacific exhibit diverse challenges in terms of sustainability, coverage, and adequacy (for example, see ILO FACTS 2013; OECD 2013; Palacios 2015). This section looks at all three aspects and also reviews the indirect economic effects of pension systems:

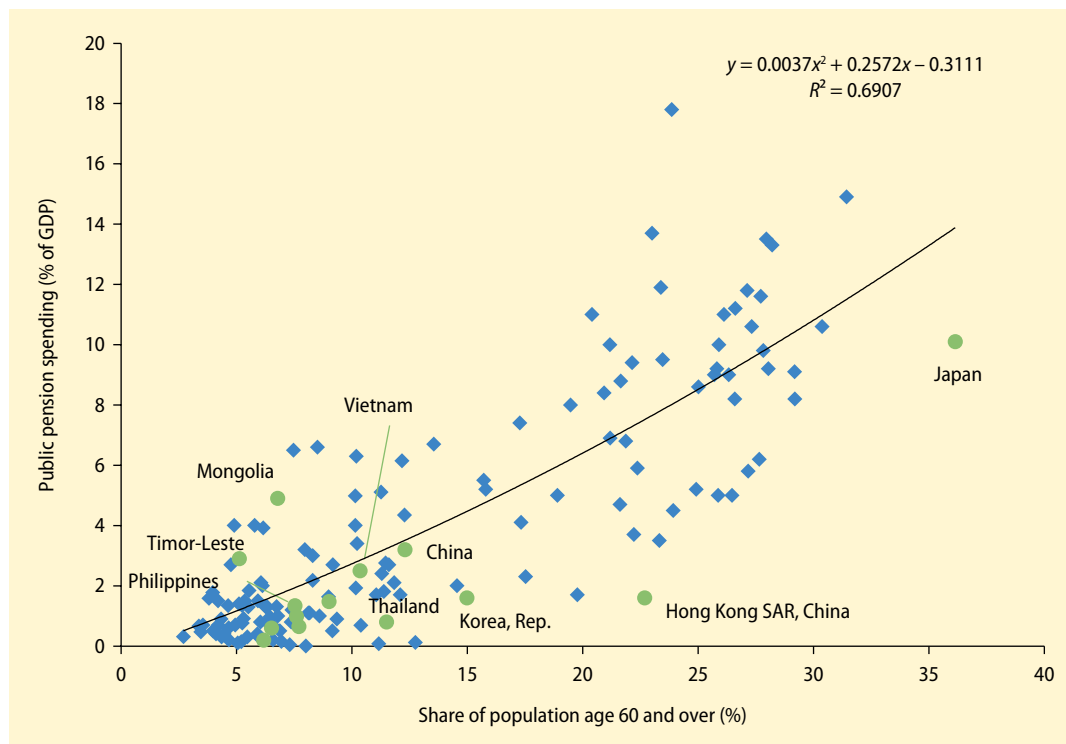
- *Financial sustainability* is a particularly acute challenge in countries facing unprecedented population aging. On the one hand, financial sustainability can directly affect adequacy when financial shortfalls lead to reduced benefits and partial defaults on pension promises. On the other hand, rising pension spending can threaten the overall fiscal picture.
- The *coverage gap* is defined as the share of workers who will not have any kind of pension income from contributory or noncontributory pension schemes. Consistent with the global picture, coverage of contributory schemes in East Asia and Pacific is closely correlated with country income levels, with very low coverage in low-income and lower-middle-income countries in the absence of broad-based social pensions.<sup>18</sup> China is a notable exception because of its unique hybrid scheme for informal workers.
- *Adequacy* directly relates to coverage because many workers participate in contributory pension schemes for only part of their careers, which results in relatively low benefits. This challenge is particularly true for low-income workers who shift between the formal and informal sectors as well as for women who tend to spend a greater share of their working age caring for children and elderly relatives.

### Pension spending and sustainability

With two exceptions, East Asian and Pacific economies currently spend less on pensions than other economies after taking into account their demographics (figure 5.2).

**FIGURE 5.2 East Asian and Pacific economies currently spend less on pensions than other economies after taking into account their demographics**

*Public pension spending in East Asian and Pacific economies and the world*



Sources: World Bank pensions database, <http://www.worldbank.org/pensions>; United Nations population data for the latest available year.

Several factors contribute to this difference in pension spending:

- DC schemes in Hong Kong SAR, China; Indonesia; Malaysia; and Singapore limit their pension spending, at least in terms of current budgetary outlays. Indonesia and Malaysia spend only on DB civil service pension schemes, whereas Hong Kong SAR, China, spends only on social pensions.
- Scheme maturation plays a role in Korea, Lao PDR, and Thailand, where mandates for DB schemes have been introduced recently. Their expenditures will rise toward the fitted line seen in figure 5.2 in the coming years as a greater share of workers qualifies for full pensions. Even after they mature, however, their low target benefit levels suggest modest spending by global standards.
- The low spending levels in Cambodia and Myanmar can be explained by the fact that no mandated scheme exists for the private sector or for social pensions.
- Another factor may simply be culture, which influences the three factors above. Much of East Asia and Pacific traditionally has placed a strong reliance on family and informal support networks such as *wantoks* in the Pacific. Policy makers continue to assume that traditional support can substitute or at least complement public pension support, although chapter 2 presented evidence questioning the future validity of this assumption.

Despite the strong relationship between aging and public pension spending across countries, policy choices have room to play a role. Independent of the policy approaches

taken, for decades pension spending in Japan has been lower than in other countries at the same stage of demographic transition, and projections for Korea suggest that, even after its scheme matures, it will also spend less than other aging countries.

Mongolia and Timor-Leste are exceptions to the general pattern of low pension spending in the region. Timor-Leste introduced universal pensions for individuals age 60 that pay around 44 percent of average, non-oil income per capita, including some disability benefits. In Mongolia, an inherited Soviet-style system had much higher coverage because of the role of the state as employer. These two countries spend notably more than other countries at the same stage of demographic aging.

Although the regional picture is incomplete, available estimates of pension system sustainability point to substantial fiscal risks in a number of national pension systems. The results are not strictly comparable because they are generated with different models and assumptions and use data of varying degrees of quality. Nevertheless, general patterns are evident in table 5.3, which shows the projected year of cash flow deficits as well as the year in which reserves are exhausted. Cash flow deficits are expected to emerge in all East Asian and Pacific DB schemes in coming decades. In Japan,

earmarked budgetary resources are used to cover part of pension spending by design. According to the 2014 actuarial report, under all but the most pessimistic case, reserves are never exhausted through the projection period that runs to 2055. Among the other countries, Mongolia has no reserves, and the scheme is already running deficits. Spending is expected to exceed contributions in Vietnam by 2021, according to International Labour Organization projections (although this projection was prior to 2014 reforms, which have somewhat improved sustainability), and somewhat later in Korea and the Philippines. Without reforms, these cash flow deficits will lead to higher general government deficits.<sup>19</sup>

Two caveats apply in the case of China. First, some provinces still have reserves, whereas others run significant deficits, and there is a separate but relatively small national fund, the National Social Security Fund (NSSF). Second, the figures refer only to the DB scheme. However, as noted, evidence shows that most of the contributions into DC accounts in China are used for current spending and are therefore not accumulating (that is, empty accounts). Nationally, subsidies to the pension system have been estimated to cost around 3.8 percent of gross domestic product (GDP) annually (Dorfman et al. 2013).

**TABLE 5.3** Defined benefit schemes in East and Southeast Asia face significant sustainability challenges

*Indicators of long-run financial sustainability of main public defined benefit schemes, selected East Asian and Pacific economies*

Country (year)	Source	Deficit or surplus in 2040 (% of GDP) <sup>a</sup>
China (2010)	Herd, Hu, and Koen 2010	–3.5
	Ma, Zhang, and Li 2012	–3.3
Korea, Rep. (2013)	Korea National Pension Service	–1.4
Mongolia (2011)	World Bank 2011	–4.5
Philippines (2011)	Philippine Social Security Service; Mesa-Lago, Viajar, and Castillo 2011	Negative from 2026
	Philippine Government Service Insurance System; Mesa-Lago, Viajar, and Castillo 2011	Negative from 2029
Thailand (2011)	Yamabana 2011	Negative from 2041
Vietnam (2012)	ILO FACTS 2013	–1.7

Sources: Herd, Hu, and Koen 2010; ILO FACTS 2013; Ma, Zhang, and Li 2012; Mesa-Lago, Viajar, and Castillo 2011; World Bank 2011; Yamabana 2011.

Note: Japan finances basic pensions from general revenues per policy, so a shortfall is not technically a deficit.

a. Refers to cash flow deficits, that is, current contributions minus current benefits. For China, the figure excludes the National Social Security Fund.

Thailand excludes civil servants.

Only Timor-Leste spends a large amount on social pensions: more than 2.5 percent of GDP (non-oil), suggesting significant sustainability issues. By comparison, no other East Asian and Pacific countries spent more than 0.4 percent of GDP on social pensions. Based on current parameters, the present value of spending on this program in Timor-Leste through 2040 as a share of today's GDP is more than 100 percent. The same present value figure for Thailand, where coverage is high but benefits are much lower, is about 20 percent.

### Coverage

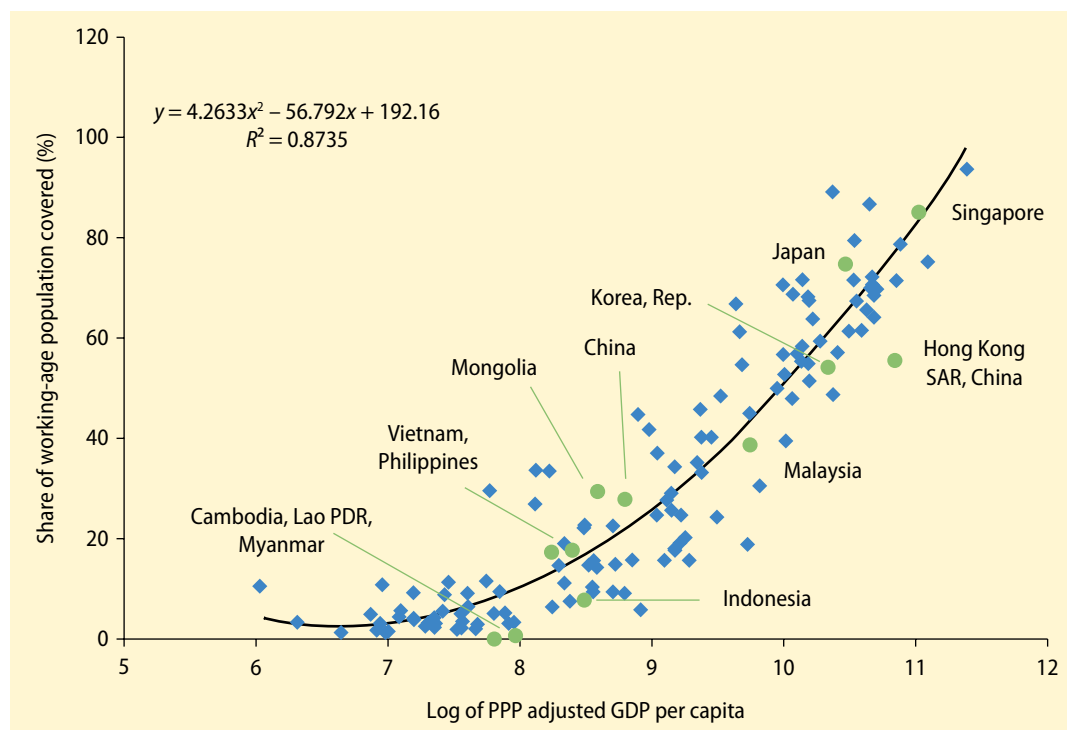
In terms of participation in contributory pension schemes, East Asia and Pacific is at or somewhat below par globally, with the exception of several low-income countries where coverage is minimal—a worrying picture in a region where aging is exceptionally rapid.

As noted earlier, no mandated scheme for private sector workers exists in Cambodia, Myanmar, and Timor-Leste, where only civil servants are covered. In the case of Indonesia, poor collection and enforcement of the mandate are likely to explain some of the shortfall. In Malaysia, low labor force participation rates of women are part of the explanation, as well as the exclusion of most migrant workers. The explanation for the low contributory coverage found in Indonesia, Lao PDR, and Thailand is less obvious. Overall, if current international patterns are a guide, most of the region is likely to experience its demographic aging process before coverage rates in mandated schemes rise to meet the challenge.

The pension schemes in the Philippines and Mongolia cover a slightly larger share of their labor forces than predicted by their income (figure 5.3). In the Philippines, the main social

**FIGURE 5.3 Coverage of contributory pension schemes is around par globally for income levels and demography**

*Coverage of working-age population in contributory pension schemes and income per capita, most recent year*



Source: World Bank pensions database, <http://www.worldbank.org/pensions>.

Note: PPP = purchasing power parity. Data are from most recent year and refer to mandated contributory coverage only.

security scheme is known for its proactive stance on collecting from the self-employed and its migrant workforce. The higher-than-predicted coverage rates in Mongolia are almost certainly due to the legacy of the centrally planned economy. As the country continues its transition toward a market economy, coverage has been falling, as has been the case in Central Asia (see Schwarz and Arias 2014).<sup>20</sup>

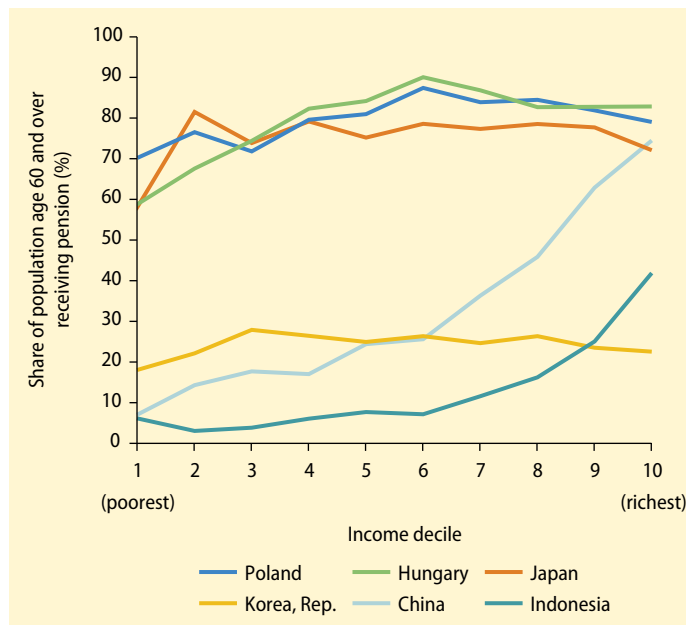
China's recent success in expanding coverage, in part because of innovations in design of its scheme, is unprecedented in global experience. The expansion of coverage of informal rural and urban workers in China since 2010 represents the single biggest increase in contributors to a government pension system in history. The expansion is unique not only in terms of its scale but also in the design of the scheme, which links contributions both to eligibility for a basic pension at age 60 and to immediate benefits for the elderly parents of contributors. This incentive is important because contributions for these informal sector workers are voluntary. If these new contributors are counted as part of the covered population, coverage would increase from about where China's income level would have predicted (about 28 percent) to well over 60 percent. Given its importance, China's experience is discussed again later in this chapter.

Countrywide averages on pension receipt hide the fact that coverage is often closely related to income level *within* countries, especially where overall coverage is low. Figure 5.4 shows that coverage in Indonesia is less than 10 percent for the bottom half of the distribution but rises to around one-third for the top quintile. The pattern is even more dramatic in China, where the elderly in the top decile are as likely to receive pensions as the same group in Japan.<sup>21</sup> Meanwhile, fewer than one in five elderly Chinese in the bottom half of the income distribution received a pension in 2011.<sup>22</sup> In the Philippines, only 2.8 percent of people in the lowest income decile were receiving a pension in 2010 (Mesa-Lago, Viajar, Castillo 2011).

With notable exceptions, the share of the bottom 40 percent of elderly receiving any pension has struggled to rise beyond 20

**FIGURE 5.4** Elderly pension coverage is low in the bottom income deciles in China, Indonesia, and the Republic of Korea

*Pension coverage among the elderly by income decile*



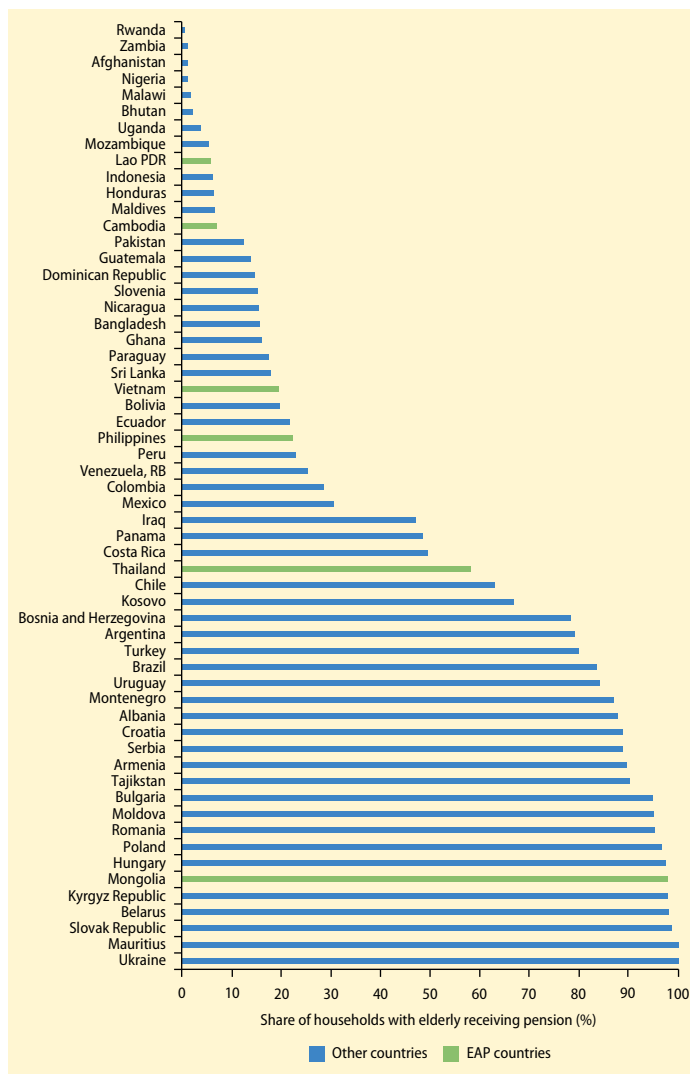
Sources: CHARLS 2011 (China); IFLS 2007 (Indonesia); JSTAR 2011 (Japan); KLoSA 2010 (Republic of Korea); Palacios 2015 (Hungary and Poland).

percent in East Asia and Pacific, highlighting the challenges of expanding coverage through a purely contributory route. Figure 5.5 shows the difficulties of increasing contributory pension coverage among the poorer segments of populations in East Asia and Pacific, who nearly always work in the informal sector. The only countries with substantial coverage among poorer groups are those with wide social pension coverage, such as China, Mongolia, Thailand, and Timor-Leste. (Timor-Leste and recent expansions of coverage in China and Thailand are not reflected in figure 5.5.)

In East Asia and Pacific, on average, a man age 60 or above is more likely to receive a pension than a woman (figure 5.6). This calculation takes into account survivor pensions, suggesting that the gap is even higher to the extent that women disproportionately receive survivor pensions, which typically have much lower value. The gap is narrowest in Japan, where a number of allowances are made for

**FIGURE 5.5 Increasing contributory pension coverage among the poorer segments of populations is difficult**

*Share of households with elderly in bottom 40 percent of distribution receiving pensions*



Source: World Bank Aspire data.

housewives and women with low rates of labor force participation, one of those being provision of a basic pension. The gap is highest in Korea, perhaps because of how coverage has expanded since the National Pension Service (NPS) was set up in 1988.

### *Adequacy*

The target replacement rate varies significantly among East Asian and Pacific pension

schemes. To compare schemes in terms of individual outcomes or target benefit levels, the analysis can simulate the results for a hypothetical worker who contributes during his or her entire career.<sup>23</sup> Figure 5.7, which compares the results in terms of gross and net replacement rates,<sup>24</sup> shows a wide range of design choices in the benefit targets for average wage workers. China, the Philippines, and Vietnam have high target replacement rates compared with the rest of the region and OECD countries.<sup>25</sup> Japan, Korea, Mongolia, and Thailand have moderate net replacement rate targets at around 40 to 50 percent, whereas the four countries that rely on DC schemes have the lowest target benefit levels. Indonesia stands out—with replacement rate targets implied by the design of its schemes—at below 20 percent.<sup>26</sup>

The degree of redistribution between low- and high-income workers also varies considerably in the region's pension systems. Many pension schemes have minimum pensions and ceilings on the wages on which contributions are made. As a result, target replacement rates are often higher for low-wage workers and lower for high-wage workers. Figure 5.8 shows the difference in simulated net replacement rates for workers with half and twice the average wage, respectively. Except in Indonesia, Malaysia, Singapore (all DC), and Vietnam, target replacement rates are significantly higher for lower-income workers. The biggest differences are seen in Korea and the Philippines.

In contrast to most high-income countries, *actual* replacement rates in DB schemes in East Asia and Pacific (except in Vietnam) tend to be lower than would be expected given the design parameters and are modest by global standards. Figure 5.9 shows the actual average replacement rates for earnings-related DB schemes in the region. Unlike target replacement rates, this indicator applies to *actual* pensions today rather than simulated pension outcomes for those starting to contribute today, and it is an average of all existing pensions divided by the average wage for all workers covered. Thus, it includes early retirement pensions, retirement pensions for workers across the income

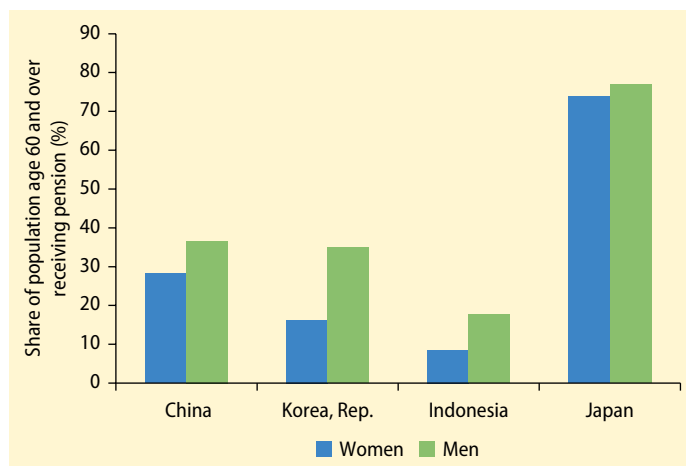


distribution, survivor and disability pensions, and pensions granted many years ago. The low replacement rates in Korea and Thailand reflect the immaturity of their schemes—as the schemes mature, replacement rates will rise to their steady-state values, which in the case of Korea is around 2028. Already, workers with more than 20 years of contributions have replacement rates twice the average.

As discussed earlier, civil service schemes in East Asia and Pacific tend to have higher replacement rates than those for private sector workers. Wang, Béland, and Zhang (2014) show that civil service replacement rates in China were about 89 percent, compared with around 45 percent for workers outside the civil service. In Vietnam, different benefit formulas applied to private and public sector workers until the 2014 reforms. This resulted in huge differences in replacement rates. Thailand's civil servants have a hybrid DB/DC scheme that provides replacement rates at least double the modest DB scheme for private sector workers. Civil servants in Indonesia have a fairly generous DB scheme, although in practice, a large share of workers' total compensation is not considered as part of the pensionable wage base, so actual replacements are lower. Nevertheless, their counterparts in the private sector have a very small DC scheme that provides little income during retirement and no longevity insurance. A similar situation is observed in Malaysia, where civil servants have a DB scheme and private sector workers contribute to a DC scheme with low median accumulations. Finally, in the Philippines, the replacement rate for civil servants is slightly lower than for private sector workers, although absolute benefits are higher as a result of wage differentials.

DC schemes in East Asia and Pacific face significant challenges in the low level of adequacy of retirement income, driven in some countries by ability of workers to make preretirement withdrawals as noted earlier. In Indonesia, Malaysia, and the Pacific Islands, certain preretirement withdrawals are allowed that lower the balances available for retirement, in many cases substantially. For example, according to Malaysia's Employees Provident Fund (EPF) website, more than half

**FIGURE 5.6** Elderly pension coverage is higher for men than for women



Sources: CHARLS 2011 (China); IFLS 2007 (Indonesia); JSTAR 2011 (Japan); KLoSA 2010 (Republic of Korea).

**FIGURE 5.7** A wide range of design choices in the pension benefit is available

*Simulated gross and net replacement rates for hypothetical workers*



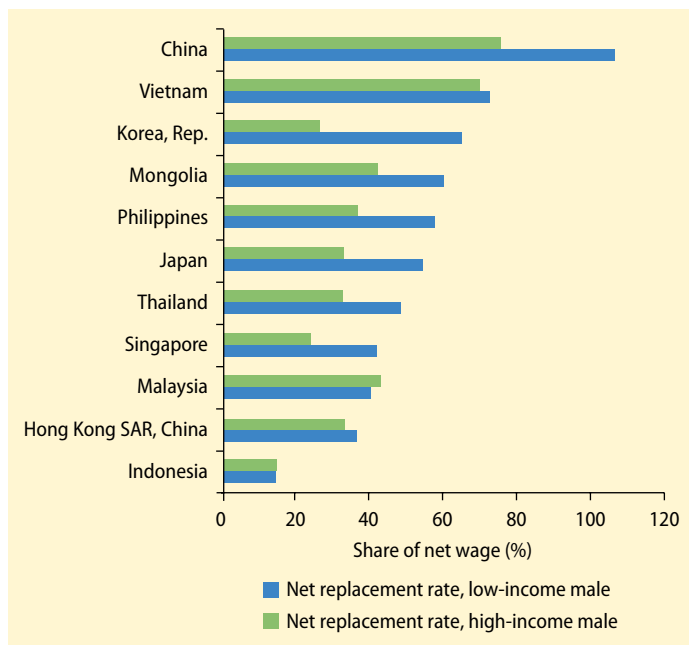
Sources: OECD 2011, 2013; Wiese 2006.

Note: LAC = Latin America and the Caribbean. OECD average is for 34 Organisation for Economic Co-operation and Development (OECD) countries based on 2012 rules. Simulated results are prospective and refer to new labor market entrants employed and making contributions throughout their careers. For defined contribution schemes, the net rate of return is assumed to be 1.5 percentage points higher than wage growth. Korean figures do not include retirement allowances. In Indonesia, a new regulation issued by the government of Indonesia in July 2015 took effect that would substantially increase the net and gross replacement rates, bringing them closer to the regional average.

of members age 54 have less than RM 65,000 in their account.<sup>27</sup> Given the life expectancy at age 55, this amount translates into an annual payment between 55 and death equivalent to one-quarter of income per capita.

**FIGURE 5.8** In most economies, target replacement rates are significantly higher for lower-income workers

*Simulated net replacement rates for hypothetical high- and low-income workers*



Sources: OECD 2011, 2013; Wiese 2006.

Note: Simulated results are prospective and refer to new male labor market entrants employed and making contributions throughout their careers. High and low income here refers to workers with twice and half the average wage, respectively. For defined contribution schemes, net rate of return is assumed to be 1.5 percentage points higher than wage growth.

Public awareness that the accumulated balances are not sufficient is increasing, and recently a number of remedial measures have been proposed, including delayed withdrawal (see, for example, Mahalingam and Wong 2013). Balances are even lower relative to member incomes in Indonesia largely because of low contribution rates combined with liberal withdrawal rules.<sup>28</sup>

In some cases, another driver of low adequacy is the actual returns on DC accounts relative to the growth of wages. The simulations presented assumed that the net rate of return on DC schemes exceeds growth of wages by 1.5 percentage points annually. Figure 5.10 shows that the differential has been slightly higher than assumed in Hong Kong SAR, China, but much lower in China and Singapore. Two important caveats should be pointed out: first, returns in Hong Kong SAR, China, are much more volatile than in

Singapore, where the nominal return has essentially been fixed since the scheme began. Second, in Hong Kong SAR, China, the investment return is an average, and returns for individuals vary widely according to choice of investment portfolio and fund (MPFA 2014).

The most disappointing case in terms of DC returns is that of China, where returns are linked to short-term bank deposits. As a result, returns on funds in DC accounts have barely exceeded inflation and have lagged far behind wage growth since long before individual accounts were introduced. Figure 5.11 shows that they continue to do so. To the extent that this lag continues, the replacement rates will be much lower than those shown earlier.

Critics have noted that replacement rates experienced by cohorts retiring in the past few decades in Singapore have been very low, but recent trends in wage growth and policy changes may improve the situation (Asher 2012; Asher and Nandy 2011).<sup>29</sup> Its Central Provident Fund (CPF) payouts are substantial relative to lifetime income but not relative to current incomes. Now that Singapore is a high-income country, wage growth is stabilizing at lower rates. If combined with an increase in the effective retirement age, this stability should result in higher replacement rates in the future. However, cohorts that are currently retiring do not have adequate savings—thanks to their CPF housing investments and appreciation of property values, many are asset rich and cash poor—which has led to several recent adjustments to the program. A lease buyback program allows elderly Singaporeans to sell their housing back to the government, along the lines of a reverse mortgage. Most recently, the government has announced the Silver Support scheme to supplement the pensions of those without sufficient accumulated savings (Rodan 2014).

For many people in East Asia and Pacific, social pensions are the key determinant of overall pension system adequacy, and benefit levels are typically modest. This situation is confirmed by figure 5.12, which compares the ratio of social pensions to income per capita in selected countries with the ratio of social pension recipients to the population ages 65 and above.



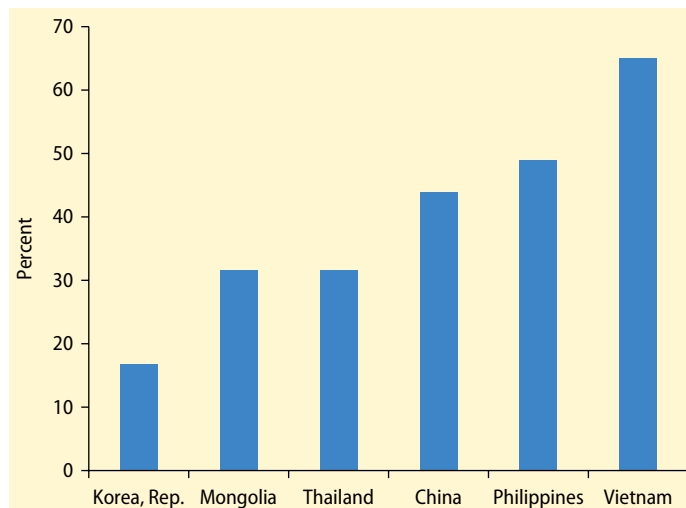
The East Asian and Pacific economies with social pension programs fall roughly into three groups:<sup>30</sup>

- Social pension benefits range from 6 to 24 percent of income per capita in Japan, Malaysia, Mongolia, the Philippines, and Vietnam. However, the number of social pensioners is very small.
- Benefit levels are low—between 5 and 9 percent of income per capita, in China; Hong Kong SAR, China; Korea; and Thailand—but the ratio of social pensioners to the population ages 65 and above is quite high, ranging from 54 to 94 percent. As noted earlier, Mongolia has increased its reliance on social pensions over the past decade, with benefits totaling about 20 percent of income per capita (World Bank 2011).
- The only East Asian and Pacific countries shown with relatively high social pensions and high coverage are Kiribati and Timor-Leste. Their programs are significantly more generous than other programs for which data are available and even compared with countries that have high coverage levels, such as South Africa. Timor-Leste's ratio is actually greater than 100 percent because its eligibility age is 60.

The role of social pensions should be interpreted with caution in light of interactions with contributory pension schemes and social assistance programs. In Japan, Malaysia, and Mongolia, contributory pension coverage is high, and the schemes are mature. Many elderly have recourse to the formal pension system, and social pensions play only a supplementary role. Although coverage is much lower in Indonesia and the Philippines, both countries have large programs that provide cash, in-kind transfers, and health insurance to a significant proportion of poor households. With very high co-residence rates in both countries, especially among poor households, a significant proportion of the poor elderly benefit from these programs.<sup>31</sup> Nevertheless, a large coverage gap clearly remains in these countries and Vietnam.

**FIGURE 5.9** In most economies, actual replacement rates in DB schemes tend to be lower than would be expected

*Actual average replacement rates in selected countries*

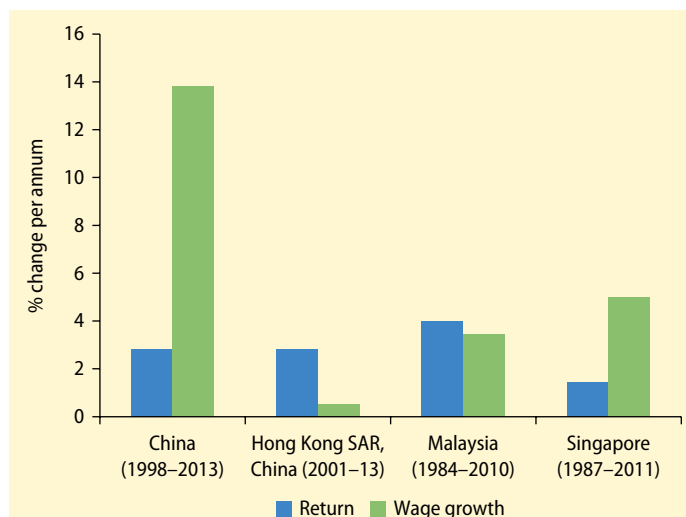


Sources: ILO FACTS 2013; NPS 2012a, 2012b; Mesa-Lago, Viajar, and Castillo 2011; SSO 2009; Wang, Béland, and Zhang 2014 (for urban workers only).

Note: DB = defined benefit. Percentages refer to average of old-age, disability, and survivor benefits divided by relevant average covered wage.

**FIGURE 5.10** Real returns on DC accounts and growth of real wages

*Average annual real returns on defined contribution accounts and growth of real wages*



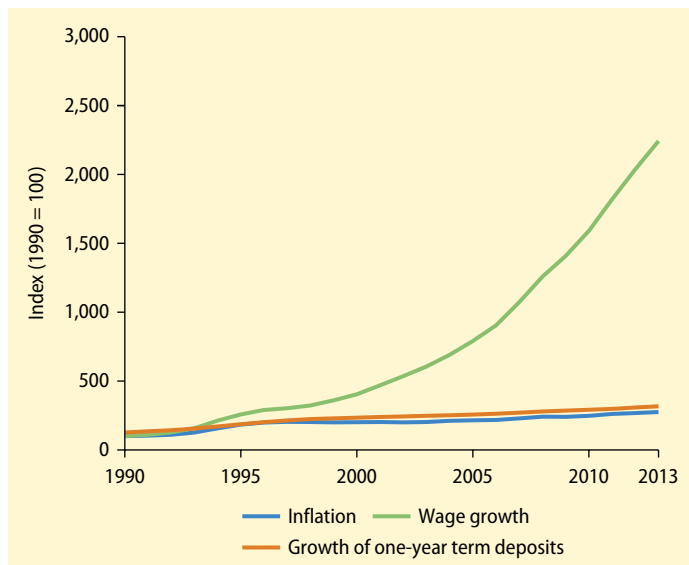
Sources: Asher and Bali 2013; MPFA 2014; World Bank 2012a.

Note: DC = defined contribution. Malaysia shows income per capita growth.

Overall, the least adequate pension systems in East Asia and Pacific are in those countries where absolute poverty is high, pension coverage is low, and neither a broad social assistance program nor a significant

**FIGURE 5.11** Returns on funds in DC accounts in China have barely exceeded inflation and have lagged far behind wage growth

*The growth of wages versus interest rates and DC returns*

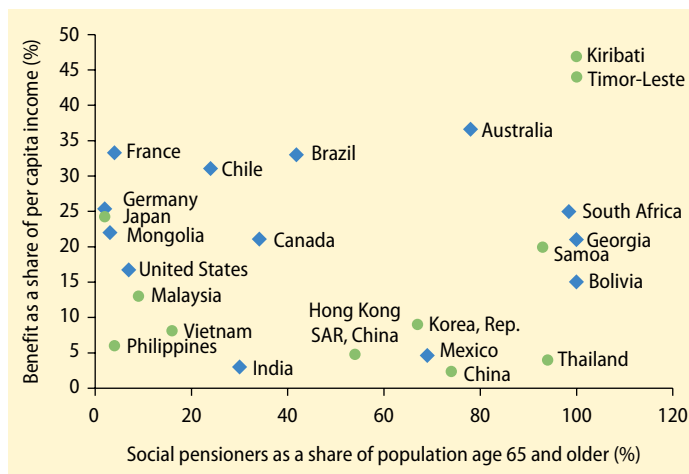


Source: China Statistical Yearbook Database, various years.

Note: DC = defined contribution.

**FIGURE 5.12** Social pension benefits are modest in East Asia and Pacific

*Social pension indicators in East Asia and selected economies*



Sources: Based on HelpAge International database, <http://www.helpage.org/resources/ageing-data/>; OECD 2013.

Note: Data are for years 2010–12. Values are limited to 100 percent, but they exceed this ratio in some countries because they are universal and the eligibility age is 60.

social pension is in place. These countries include Cambodia, Lao PDR, and Myanmar, which have no income support for the elderly outside of contributory formal sector schemes that cover less than 10 percent of the population. The Philippines and Vietnam have somewhat higher coverage through their contributory pensions, but their social pensions are very small and pay very low benefits. Although Indonesia and the Philippines do provide some social assistance and health insurance, both countries have a large gap in terms of adequate income protection for the elderly. Despite the broad social pension coverage that has now emerged in China and Thailand, the level of pensions in both absolute and relative terms is too low to be considered adequate.

Among richer economies in East Asia and Pacific, the rapid growth of wages in recent decades has resulted in pensions that are high relative to the lifetime income of the person but not relative to current incomes. Although such rates of income growth are not expected to continue, the increases will affect the situation in China; Hong Kong SAR, China; and Korea, where no pension scheme operated during much of the high growth period. Without forced savings schemes, the incomes of the elderly in Hong Kong SAR, China, and in Korea are tied to personal savings decisions and the ability to work into old age. Korea, for example, is clearly an outlier among OECD countries in terms of its elderly, with high poverty rates and reliance on labor income. Rapid wage growth also affects Malaysia and Singapore because of the relationship between wage growth and returns on account balances. The DC schemes used in these countries do not allow for intergenerational transfers, and unless investment returns exceed wage growth, the approach will generate low replacement rates.

### Indirect effects of pension schemes on the economy

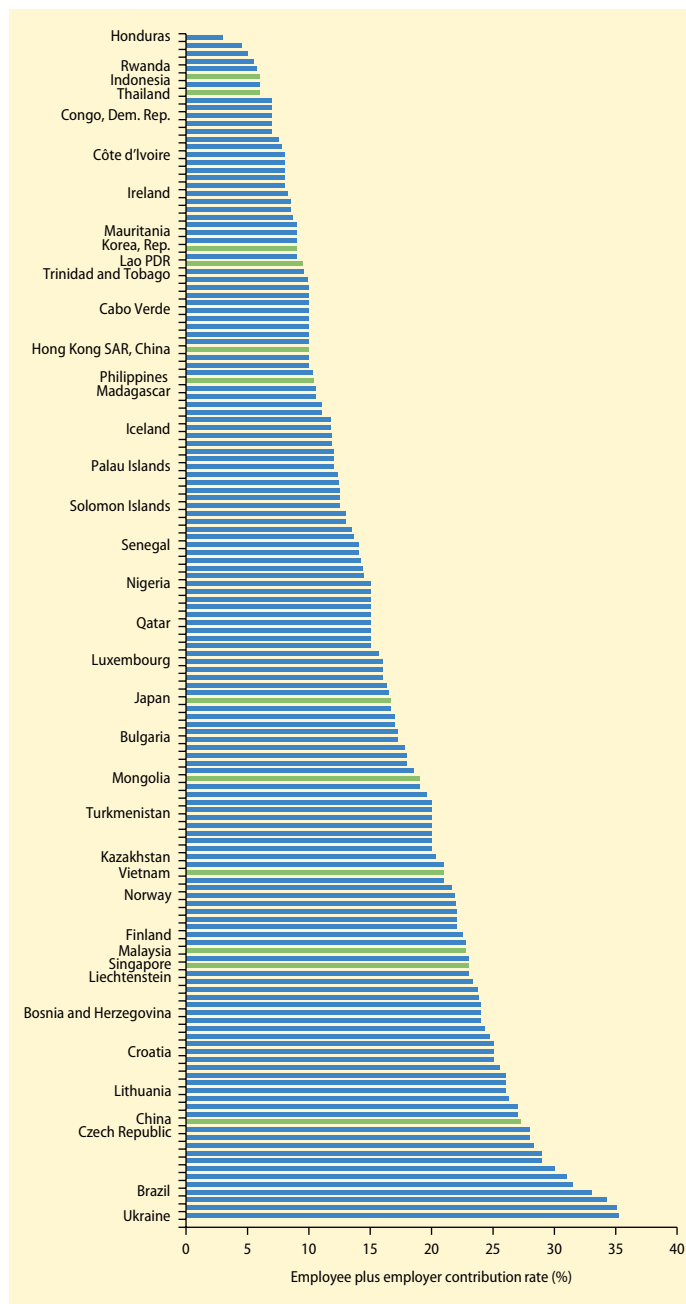
Aside from the effects on public finances, pension systems can affect labor markets on

several fronts, starting with the effects on the demand and supply of labor. Two potential effects are important: higher rates of informal sector activity and lower labor force participation of the elderly. (A third potential effect of the pension system is on individual behavior, caused by the lack of benefit portability.) The international evidence for the first effect is limited, and what evidence does exist is mixed. Two studies in Latin America found that a reduction in social security contributions led to an increase in formal employment—in both cases, a 10 percent reduction led to a roughly 5 percent increase in formal employment (Heckman and Pagés 2004; Kugler and Kugler 2009). Two other empirical studies, however, found no evidence of such an effect when payroll taxes were reduced (Cruces, Galiani, and Kidyba 2010; Gruber 1997). Betcherman and Pagés (2007) found that reducing social security contributions led to a significant increase in formal employment in Turkey, and Koettl and Weber (2012) found that the marginal effective tax rate is associated with higher rates of informal labor market activity in European Union countries. In addition, high legal minimum wages, restrictions against firing, compliance with various regulations, and transaction costs involved with collection and reporting all combine to make operating in the gray economy more attractive. These incentives are no different in East Asia (World Bank 2014).

Pension contribution rates and their potential impacts on formality and competitiveness vary widely, both globally and within East Asia and Pacific. Figure 5.13 compares total contribution rates (employee plus employer) for pensions in about 150 countries. Not surprisingly, older countries with mature public DB schemes in Europe and some Latin American and Caribbean countries have the highest contribution rates, whereas younger, immature pension schemes in Sub-Saharan Africa or Central America tend to have lower contribution rates. The range is as large within East Asia and Pacific as it is globally, from 6 percent to 28 percent (excluding Cambodia and Myanmar, which have no mandate).

**FIGURE 5.13 Older economies have higher pension contribution rates than do younger economies**

*Total contribution rates for pensions in East Asia and Pacific compared with selected economies*



Source: World Bank pensions database, <http://www.worldbank.org/pensions>.

Note: Singapore's rates are for workers up to age 50, after which they fall gradually until they reach 1 percent at age 65 and above.

East Asia and Pacific can be divided roughly into two groups in terms of pension contribution rates.<sup>32</sup> The first group—which includes Hong Kong SAR, China; Indonesia; Korea; Lao PDR; the Philippines; and Thailand—has modest total contribution rates that place them in the bottom third of the distribution at between 5.7 and 10.3 percent. The second group—China, Japan,<sup>33</sup> Malaysia, Mongolia, Singapore, and Vietnam—has contribution rates between 18 and 28 percent.

Pension contribution rates in the second group of countries are likely to have a significant impact on formality decisions, especially contributions by smaller firms and the self-employed. This impact is a particular concern in China and Vietnam, which are aging quickly and where the race to extend coverage is most urgent. High historical rates of coverage in Mongolia are also not guaranteed to continue as the economy evolves. Ultimately, the factors that lead to formalization, including incentives, economic structure, and enforcement capacity, encompass much more than the pension system. However, in the context of rapid aging, upward pressure on pension and other social insurance contribution rates will continue unless financing policies change. To some extent this increase is already happening, as in the case of the growing role of earmarked value-added taxes in Japan. The policy options will be discussed in the next section, on reforms.

The impact of the pension system on individual decisions regarding when to retire is much more direct and can be attributed to the design of the pension scheme itself. Several studies that focused on OECD countries have shown that the timing of retirement is influenced by the incentives built into the pension and tax rules. Gruber and Wise (1999) and Wise (2004) find a strong relationship between the incentives built into the pension systems and actual retirement patterns across 12 OECD countries. Duval (2003) finds similar results for a sample of 22 OECD countries. For East Asia and Pacific, the effect on labor force participation rates (LFPRs) will be restricted to a subset of

the population that is covered by the pension system. This results in highly divergent retirement patterns, particularly between urban and rural workers, as shown in chapter 2. That discussion notes, for example, that the strongest determinant for exiting work at older ages among urban Chinese is the receipt of a pension. Receipt of a pension was also associated with exiting the labor force in Indonesia and (with a weaker relationship) in Japan and Korea, which is consistent with the design of their pension schemes.<sup>34</sup>

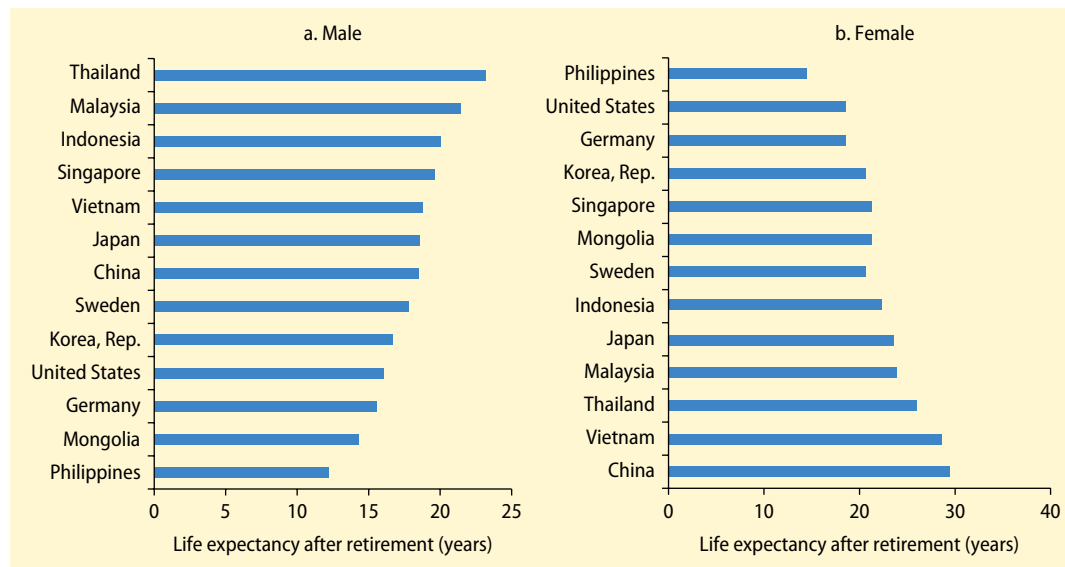
Retirement ages in national pension schemes are relatively low in East Asia and Pacific compared with life expectancy at age of retirement, as shown in figure 5.14. Indonesia, Malaysia, and Thailand are well above the OECD average for life expectancy at retirement, and only the Philippines is below average. The situation is more dramatic for women: their life expectancy is more than 25 years at the normal retirement age, except in Korea and the Philippines. Moreover, in countries with lower coverage, these figures understate the extent to which life expectancy at retirement exceeds that in OECD countries, because the mortality rates used for the calculation are based on national averages. The covered population, which tends to be urban and in the upper half of the income distribution, almost certainly lives longer than the national averages.

For most East Asian countries, LFPRs are at or above levels found in countries whose elderly have similar health-adjusted life expectancy. The clear exception is Mongolia, where LFPRs are much lower than in comparable countries. However, figure 5.15 shows that ability to work at older ages is not closely linked to LFPRs of the elderly.<sup>35</sup>

A much stronger relationship is seen between pension spending and LFPRs of the elderly. Figure 5.16 compares the average share of GDP that countries spent on publicly mandated pensions in 2010 and LFPRs of people ages 60 and above. The expected negative correlation is evident, but its interpretation is not straightforward. Higher pension spending is associated with both higher

**FIGURE 5.14 Retirement ages in national pension schemes are relatively low in East Asia and Pacific compared with life expectancy at age of retirement**

*Life expectancy at retirement age*



Source: OECD 2013.

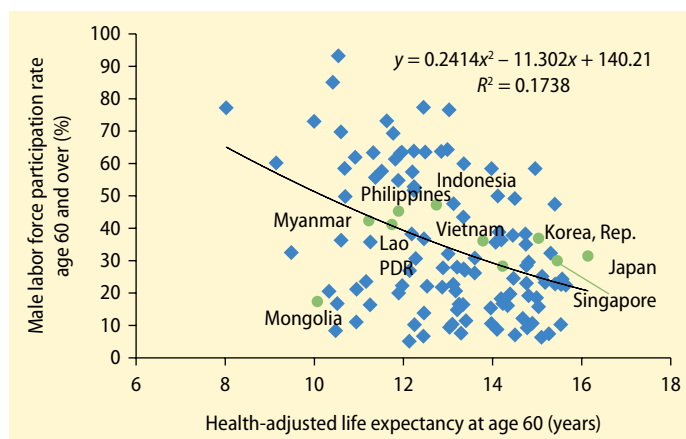
Note: Official retirement ages vary by country.

average pensions and larger numbers of pensioners, both of which should contribute to lower labor force participation of the elderly. As public pension spending rises, the expected decline in LFPRs of older workers is observed, and the effect is generally larger for spending increases from a lower base. However, the effect may be overstated if other important factors are not taken into account.<sup>36</sup> The major outlier is Japan, which has much higher LFPRs than would be expected, given its pension spending levels. This analysis may provide evidence that the measures Japan has introduced, such as partial pensions with continued part-time work, may have helped keep rates higher than they would have otherwise been.

Among East Asian countries, Singapore's LFPR stands out as having LFPRs that have risen more in percentage terms than those of any other country in the past two decades. Although Singapore provides incentives to employers to employ older workers, at the same time its CPF balances are generating very low replacement rates, possibly forcing people to work longer to maintain their

**FIGURE 5.15 Ability to work at older ages is not closely linked to labor force participation rates**

*Health-adjusted life expectancy and labor force participation rates for males ages 60 and older*

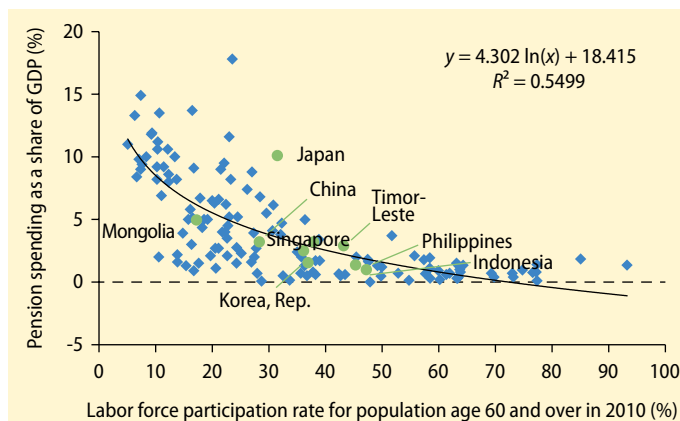


Sources: For labor force participation rates, World Bank 2013; for health-adjusted life expectancy, WHO 2010.

living standards (see Asher and Bali 2013). In fact, Singapore has the highest LFPR for people ages 60 and above of any country close to its income level. Recent changes that restrict withdrawals before a certain age are

**FIGURE 5.16 Pension spending is closely linked to labor force participation rates**

*Pension spending and labor force participation rates of persons ages 60 and above*



Sources: World Bank pensions database, <http://www.worldbank.org/pensions>; World Bank 2013.

likely to push LFPs among those ages 55 to 64 even higher.

In most East Asian and Pacific economies, official retirement ages are low—especially for women—and have often been static for long periods. Even for economies with larger aged populations, such as China and Korea, official ages are low (table 5.4). Although some movement toward higher retirement ages has occurred, such as Malaysia's increase from 55 to 60 years, others such as Vietnam have failed to pass even modest increases, despite the rapid aging of the population. The relatively low retirement ages lead to increased spending in China and Mongolia, especially for urban workers, making pension schemes less sustainable. Indonesia is a special case in that withdrawals are allowed at any age as long as five years of contribution have been made.

Most economies with DB schemes provide little or no incentive for delaying retirement. Retiring later than the normal age is not allowed in Indonesia and Vietnam, and it is effectively penalized in China and the Philippines, where an additional year of contribution does not increase the pension. The Philippines also explicitly prohibits working and receiving a pension, but only until age 65. In Thailand, where the retirement age is very low, later retirement results in only a small

increase in pension wealth. Only Japan and Korea provide a significant reward for delaying retirement.

In developing East Asian and Pacific economies, in many cases incentives for early retirement are strong, even before the already low official retirement age. Table 5.5 shows the incentives for male workers, which are implicit in the rules regarding early and late retirement. In Vietnam, early retirement actually increases pension wealth because the penalty is too low to offset the extra benefits received. The Philippines rewards early retirement with a large increase in pension wealth and penalizes late retirement at a rate of 17 percent per year. In contrast, Japan and Korea heavily penalize early retirement.

Such incentives for early retirement can have negative outcomes and are undesirable in countries where the overall size of the labor force is already shrinking or set to shrink in the face of aging workers' retirement and fertility decline. In China and Vietnam, for example, the average retirement ages among formal urban workers are 3–4 years below official retirement ages for both genders, despite those already being low, especially for women. Notably, increasing the retirement age has been consistently shown to have a more positive impact on economic growth than raising contribution rates or cutting benefit levels to reduce pension scheme deficits (see Barrel, Hurst, and Kirby 2009; Karam et al. 2010).

In East Asia and Pacific, the impact of pension systems on retirement behavior is likely to be significant only when they are contributory pension systems. As shown in chapter 2, receipt of a contributory pension has a strong association with likelihood of retirement, which in East Asia and Pacific draws those with higher levels of education and productivity out of the labor market prematurely. In contrast, the impact of noncontributory pensions or social assistance programs is likely to be negligible unless benefits are increased significantly. For example, Zhang, Giles, and Zhao (2014) find little evidence that the rural pension reduces the labor supply of elderly in China, given the relatively low benefit level.

**TABLE 5.4 Retirement rules for East Asian contributory pension schemes**

	<b>Normal retirement age (men/women)</b>	<b>Conditions for early retirement</b>	<b>Conditions for late retirement</b>
China	60/55	Blue-collar manual workers can retire at 55/50.	Allowed, but pension is not increased.
Hong Kong SAR, China	60/60	Allowed only in cases of terminal illness or permanent migration.	Allowed, with interest on the balance accruing for the additional period.
Indonesia	55/55 for formal sector; 58 for most civil servants; 56 proposed in SJSN	Withdrawal of balance allowed at any age subject to having contributed for five years and after one month of unemployment.	Not allowed.
Japan	65/65	Allowed at 60 with 6 percent reduction per year. Early retirement at a reduced benefit is possible in both basic and earnings-related schemes. The benefit is reduced by 0.5 percent per month of early retirement, or 6 percent per year.	Deferring retirement increases the pension benefit by 0.7 percent per month or 8.4 percent per year.
Korea, Rep.	60/60	Allowed at age 55, but the minimum age is rising to 60 by 2033.	At 60, early old-age pension will be 70 percent of normal old-age pension. Benefit is increased by 6 percent every year, so a person who retires at age 64 will be entitled to 94 percent of the full old-age pension. People can earn extra pension from retiring late. The benefit is increased by 7.2 percent every year, and the maximum deferral is five years until age 70.
Lao PDR	60/60	Allowed at 55 with reduction based on points system.	n.a.
Malaysia	60/60	Some withdrawal possible prior to age 55.	Allowed; interest on balance accrues for the additional period.
Mongolia	60/55	Allowed for workers in hazardous jobs.	n.a.
Philippines	65/65	Allowed at age 60 subject to minimum contribution period.	Allowed, but pension is not increased. Working while receiving a pension is not allowed.
Singapore	63/63 (rising to 65 in 2018)	Subject to having the minimum required balance, a lump sum can be taken before the standard age of withdrawal. Annuitized unless retiree opts out.	Allowed; interest on balance accrues for the additional period.
Thailand	55/55	Not allowed.	Allowed with additional 1.5 percent per year accrual.
Vietnam	60/55	Workers in hazardous jobs and certain areas can retire at 55/50; pension reduced 1 percent per year before normal age.	Not allowed. Working while receiving a pension is allowed.

Source: Palacios 2015.

Note: n.a. = not applicable. SJSN = National Social Security System. Indonesia's new regulations, effective July 1, 2015, will gradually increase the retirement age from 56 to 65 by 2043.

Pension systems also can have indirect effects on the economy through their role in public and private savings behavior. Prefunding of public pension liabilities generally takes two forms: partial funding of DB schemes and full funding of DC schemes.

An important point for fiscal accounting purposes is that these two ways of accumulating pension assets are treated very differently. Contributions that lead to a surplus in a DB scheme are considered part of general government revenues, and the accumulation of



**TABLE 5.5 Retirement rules and incentives for male workers in selected countries**

Country	Normal age	Early retirement penalty (% change)	Late retirement reward (% change)
Japan	65	–23	23
Korea, Rep.	65	–22	15
Philippines	65	18	–17
Thailand	55	Not possible	1
Vietnam <sup>a</sup>	60	15	Not possible

Source: World Bank calculations.

Note: Figures in the last two columns refer to the annual change in present value of pension payments from retirement until death for early and late retirement. Figures use national mortality rates at relevant ages.

a. Amendments to Vietnam's social insurance law in 2014 increase the early retirement penalty slightly but not enough to offset the increase in pension wealth.

pension reserves in DB schemes can reduce explicit government deficits and debt in the near term if surpluses are not borrowed for additional consumption. However, a measure of the true impact on public savings should take into account the fact that unreported pension liabilities are growing (see Goebel, van de Ven, and Zwijnenburg 2015; Holzmann, Palacios, and Zvinienė 2004). In contrast, contributions to individual account schemes are not counted as part of revenues because they are considered the property of their owners, the individual workers. Pension savings in the form of individual accounts are considered private savings, and here too, the government may offset any positive effect by borrowing more than it would otherwise. However, in this case, no hidden liability is affecting the government's long-term finances.

The evidence suggests that mandated DB schemes are likely to reduce savings. In the case of unfunded or partially funded DB schemes, as individuals accumulate pension wealth, they may reduce their own private savings for old age. Some evidence of this effect can be seen in economies of East Asia and Pacific, though mostly it occurs in richer countries.<sup>37</sup> Yamada, Yamada, and Liu (1992) found a reduction of 40 percent in private savings in Japan for every increased unit of public pension wealth.<sup>38</sup> Especially in DB schemes that ignore growth in unfunded liabilities during the immature stage of the system, investing heavily in government bonds will tend to reduce public savings. When cash flows turn

negative, the DB schemes contribute directly to larger deficits, a situation now common in Europe and already a reality in Mongolia.

In contrast, evidence indicates that DC schemes are likely to have a neutral to slightly positive effect on private savings.<sup>39</sup> Most of the literature examines the changes in private savings when economies move from unfunded DB schemes to privately managed DC schemes. The amount of savings depends on how much of the transition costs are covered by borrowing from the new DC scheme. In four Latin American and Caribbean countries, estimates of the overall increase in savings ranged from 1 percent to 2.5 percent of GDP.<sup>40</sup> However, no evidence shows that the Eastern European reforms of this type increase net savings. In East Asia and Pacific, at least two reforms have involved moving from an unfunded DB to a funded DC model—namely, in China and Thailand<sup>41</sup>—but no studies have been conducted on the impact of these reforms on savings. Research on the provident funds in Malaysia and Singapore generally shows a positive effect on private savings, although the results vary. Husain (1995) found that mandated savings in the CPF in Singapore were fully offset by a reduction in voluntary private savings. In contrast, Hopf (2009) found that despite some offset through lower private voluntary savings, Singapore still showed an important positive net effect. Wickramanayake (1998) also found that the CPF contributed to national savings during the period 1970–94. The International Monetary Fund found no statistically significant effect of Malaysia's EPF on private saving, suggesting that the reduction in voluntary savings and withdrawals offset the impact of the mandate (IMF 1994).

Prefunding can also affect capital markets. Walker and Lefort (2002) outline the possible channels for such an impact. Their empirical results for Latin America and the Caribbean suggest that the presence of these funds can lead to “a reduction in the cost of capital; lower security price volatility; and higher traded volumes” (Walker and Lefort 2002, 3). Catalán, Impavido, and Musalem (2000) note that the causality could run in the opposite



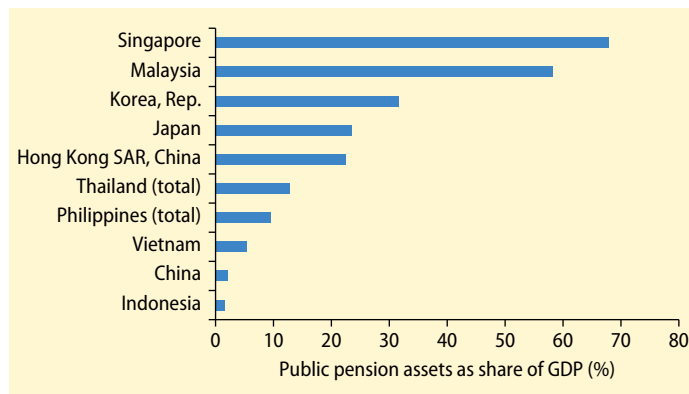
direction, namely from improvements in the capital markets to the pension funds. They found that in most wealthier countries, pension funds led to greater stock market capitalization and liquidity, although the results varied across countries. In Malaysia and Singapore, little or no evidence demonstrated causality between institutions and markets, which the authors attribute to centralized public management. In a recent study, Hu (2012) used data from 10 Asian economies, including China; Hong Kong SAR, China; Korea; Malaysia; Singapore; and Thailand, to explore the effects of the growth of pension assets on financial markets. The study found a significant impact on stock market capitalization and, for developing countries, on liquidity.<sup>42</sup> In addition, it found no impact on government bond markets but a positive impact on corporate bond markets. The effects are more pronounced in less developed economies, but they may also lack preconditions such as a good supervisory regime and a stable macroeconomic environment.

Among partially funded DB schemes, 3 of the top 10 pension reserves in the world in absolute dollar terms are in East Asia, that is, China, Japan, and Korea (OECD 2013). As a share of GDP, Japan and Korea occupy the top and third spots globally at more than one-quarter of GDP, but China ranks among the smallest, with only around 2 percent of GDP. As shown in figure 5.17, only the higher-income economies—Hong Kong SAR, China; Japan; Korea; Malaysia; and Singapore—have pension assets that are large relative to GDP. Notably, the provident funds in Malaysia and Singapore are mature, whereas DB schemes in Korea and Thailand and the DC scheme in Hong Kong SAR, China, are at an early stage and will grow significantly in the next few decades. By 2030, Korean reserves are projected to reach 50 percent of GDP. The reforms planned in Indonesia, Myanmar, and Timor-Leste are also likely to lead to significant growth in pension reserves.<sup>43</sup>

The impacts of pension systems on capital markets and fund performance are dependent on governance and investment policy, and East Asia and Pacific has mixed performance

**FIGURE 5.17 Only higher-income economies have pension assets that are large relative to GDP**

*Pension fund assets as a share of GDP*



Sources: CPF Board 2013; Government of Korea 2012; Mesa-Lago, Viajar, and Castillo 2011; MPFA 2014; OECD 2013; SSO 2009; World Bank 2013.

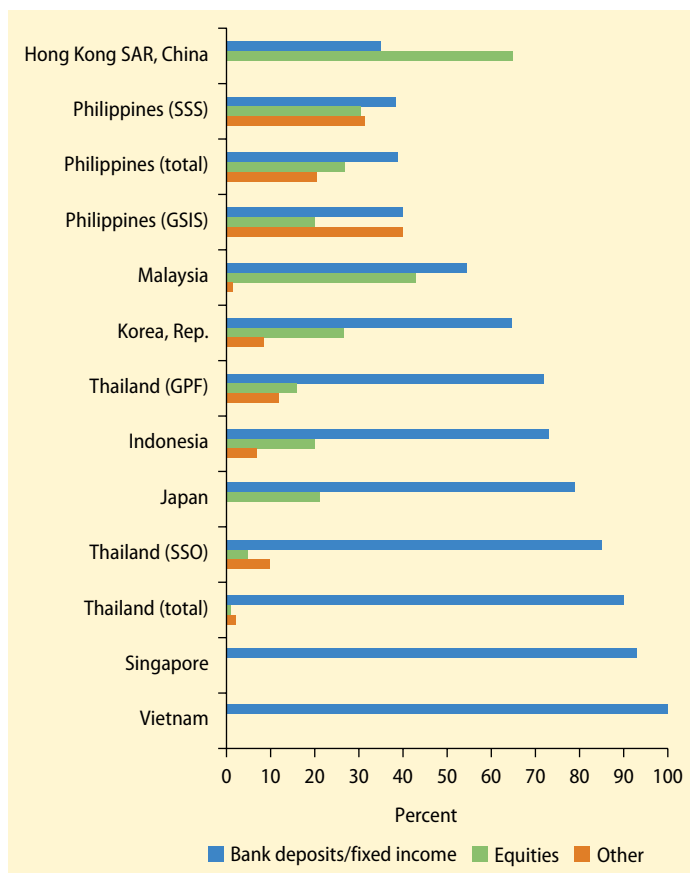
Note: Thailand includes Social Security Office and Government Pension Fund, plus the Social Security System and the Government Service Insurance System. China refers to the National Social Security Fund only.

on both dimensions. In a Transparency and Governance Index constructed by Souto and Musalem (2012),<sup>44</sup> Korea, Malaysia, and Singapore are ranked in the top third of 83 public pension funds globally, with only Korea ranked among the top 20 economies. Thailand's Government Pension Fund (GPF) and China's NSSF fall in the middle third, while Japan and the two pension funds in the Philippines are in the bottom third. Although not included in the survey, available information for Vietnam suggests that it would not score well, as little public information is available and investment decisions are essentially in the hands of the minister of finance. A similar situation holds for the Social Security Office (SSO) in Thailand, where information is scarce and the most recent annual report available on its website is for 2009. In contrast, Hong Kong SAR, China, relies on private trusts to manage pension funds, and the role of the government is to supervise them. China's Mandatory Provident Fund Authority (MPFA) is a well-staffed, professional body that supervises 41 schemes offering more than 400 funds with a high degree of transparency.<sup>45</sup>

The experience of the Philippine Social Security System (SSS) is particularly

**FIGURE 5.18 Pension agencies in East Asia and Pacific generally have conservative investment practices**

*Portfolio composition of mandated pension funds in East Asia*



Sources: CPF 2013; Government of Korea 2012; Mesa-Lago, Viajar, and Castillo 2011; MPFA 2014; OECD 2013; SSO 2009; World Bank 2013.

Note: GPF = Government Pension Fund; GSIS = Government Service Insurance System; SSO = Social Security Office; SSS = Social Security System.

instructive for demonstrating the link between governance and performance. Mesa-Lago, Viajar, and Castillo (2011) document how political objectives have influenced the choice for board membership and cite examples in which projects and personal loans were made under pressure from senior politicians. The authors also cite politically motivated investments in airlines, hotels, and commercial banks that had negative repercussions in capital markets and led to losses for the fund. Between 2000 and 2010, the real rate of return in the SSS and the Government Service Insurance System (GSIS) was 3.3 and 5.1 percent, respectively, even as GSIS returns were less volatile. Similar challenges have

been seen in the provident funds of some Pacific Island countries, particularly with respect to investments in domestic real estate ventures.<sup>46</sup>

Pension agencies in East Asia and Pacific generally have conservative investment practices, with the exception of Hong Kong SAR, China, and, more recently, Malaysia. Figure 5.18 shows that Hong Kong SAR, China, has by far the most investments in equity markets among these economies. However, many public pension funds globally have increased their holdings in private securities and other risky investments, particularly during the past decade in Korea and Malaysia. At the other end of the spectrum, Vietnam's and Thailand's SSOs are heavily concentrated in cash and government- or state-owned enterprise bonds. In Vietnam, the portfolio consists completely of government bonds, and returns have been negative in real terms in recent years (IHME 2013). In the case of Thailand, the fact that the GPF is able to have a significantly more diversified portfolio than the SSO suggests that the portfolio is the result of a policy choice.

The size of pension or provident funds relative to domestic markets is a factor even in East Asian and Pacific economies with deep stock and bond markets. A clear case has been made for diversifying pension and provident fund investments internationally to obtain the best risk-adjusted returns. The accumulated balances in Malaysia and Singapore are equivalent to 40 to 45 percent of the value of their respective stock markets. In Korea, the NPS already has shares worth about 5 percent of the domestic stock market, owns 15 percent of domestic bonds traded, and is expected to grow rapidly for the next two decades (Palacios 2015). Earlier studies have shown that larger pension funds with long track records have decent performance relative to other public pension funds in developing countries, and this record has persisted and even improved in the case of Korea and Malaysia (see Palacios 2002 for a cross-country comparison). Nevertheless, these figures show room for improvement in terms of diversification and its potentially

**TABLE 5.6** Assessment of pension system performance and level of reform needed

Economy	Performance			Indirect impact		
	Sustainability	Coverage	Adequacy	Formal labor force participation rate	60+ labor force participation rate	Savings and capital market
Cambodia	Minor	Major	Major	Minor	Minor	Minor
China	Significant	Significant	Major	Major	Major	Major
Hong Kong SAR, China	Minor	Minor	Significant	Minor	Minor	Minor
Indonesia	Minor	Major	Major	Minor	Minor	Major
Japan	Minor	Minor	Minor	Minor	Minor	Significant
Korea, Rep.	Significant	Minor	Significant	Minor	Significant	Minor
Lao PDR	Minor	Major	Major	Minor	Minor	Minor
Malaysia	Minor	Minor	Major	Significant	Major	Minor
Mongolia	Major	Significant	Significant	Major	Major	Major
Myanmar	Minor	Major	Major	Minor	Minor	Minor
Philippines	Significant	Major	Major	Minor	Minor	Major
Singapore	Minor	Minor	Major	Significant	Minor	Minor
Thailand	Significant	Significant	Significant	Minor	Significant	Major
Timor-Leste	Significant	Minor	Minor	Minor	Minor	Minor
Vietnam	Major	Major	Major	Major	Major	Major

Source: Palacios 2015, based on data from economy pension system sources.

positive effects on domestic capital markets, especially in Thailand and Vietnam. Having government-run pension funds become the largest owners of bonds and shares has implications in terms of corporate governance and potential conflicts of interest. Over the past few years, Korea, Malaysia, and the GPF in Thailand have all consciously increased their foreign investment shares to between 15 and 20 percent of total assets. Hong Kong SAR, China, invests 40 percent in global assets, mostly equities. China and Japan also hold some foreign assets, but the rest of the pension funds hold only domestic securities.

### Summary of performance assessment

Given the economic, demographic, and pension system diversity across East Asia and Pacific, finding that national pension systems face significantly different challenges is not surprising. Table 5.6 summarizes by differentiating between economies that require substantial or moderate reforms in certain areas from those where reforms are less urgent or require only minor changes (the need for reform is major, significant, or minor, respectively).

In summary:

- *Major reforms are needed in the maturing pension schemes of three rapidly aging countries: China, Mongolia, and Vietnam.* All three countries have large unfunded pension liabilities and will start to run deficits in the next two decades. Although coverage in China has improved dramatically with the expansion of informal sector pensions, the social pension element to date remains very low and adequacy remains a concern. Sustainability in the Chinese system is more complex to assess. The post-1997 reforms have improved the long-run sustainability of the urban workers' scheme, but there remain significant issues with legacy costs of the pre-reform system, empty or partially funded individual accounts, low retirement ages relative to life expectancy, low pension reserves, and rapid demographic aging (Jackson et al. 2013, Mercer and Australian Centre for Financial Studies 2015, IMF 2011). Coverage in Mongolia is high among the elderly but is falling for the working-age population (although this may be offset by expanding social pension coverage).

In Vietnam, low coverage is a major problem in the context of rapid population aging. These countries also have high contribution rates and incentives to retire early. Prefunding is not likely to deliver benefits as designed in China and Mongolia and increasingly so in Vietnam, where management of reserves needs to be improved. The Philippines also requires significant reforms in these areas.

- *The DC schemes in Hong Kong SAR, China; Malaysia; and Singapore mainly face problems related to adequacy, albeit for different reasons.* Having started its mandate only recently, Hong Kong SAR, China, is already demographically aged before its scheme has matured, and even when it does, retirement income will be low for the lifetime poor and the unlucky (in terms of rate of return). Malaysia and Singapore have been the victims of their own success in that growth in wages has been a boon to lifetime incomes. However, modest rates of return on individual accounts are resulting in low replacement rates for those retiring recently or in the near future. This pattern is likely to change in the long run and could lead to higher replacement rates, but it will not prevent poverty for the lifetime poor.
- *Japan and Korea have chosen to rely on a combination of partial funding and modest benefit targets to ensure sustainability.* Japan appears somewhat more sustainable after its shift to financing through its consumption tax (the goods and services tax) and other measures that will effectively prevent an increase in the pension bill as a share of GDP in the long run (see Kashiwase, Nozaki, and Tokuoka 2012).<sup>47</sup> As in Hong Kong SAR, China, the immaturity of the scheme in Korea means that cohorts retiring soon will have low pension income. This transitional phenomenon in Korea helps explain why it has among the highest elderly poverty rates in the OECD.
- *The picture is mixed among countries of Southeast Asian countries, with low-income countries facing major choices in*

*shaping their future pension model.* Because of Thailand's long retirement duration and low contribution rates, its main pension scheme is projected to run deficits in about two decades. Through the massive expansion of the social pension, coverage has become close to universal, but benefit levels are modest and have a relatively modest impact on poverty among the old (although a more significant impact on extreme poverty). In contrast, pensions of civil servants in Thailand are much higher than for private sector workers. In terms of indirect effects, the private sector scheme provides incentives to retire earlier, and the SSO's prefunding approach undermines potential saving and capital market impacts. The situation in Indonesia is similar in many ways: the low contribution rate for the DC scheme ensures low benefits, and coverage is very low. The major difference is the lack of any social pension, which makes both coverage and adequacy urgent priorities. The proposed new pension scheme, which would include a DB plan, fundamentally changes the picture but only for those who will be covered. At the time of writing, Timor-Leste was also planning to introduce a national DB scheme. The current universal pension raises concerns over longer-term sustainability. Cambodia, Lao PDR, and Myanmar have very low coverage rates even for their income levels and have no social pensions or broad social assistance schemes to address elderly poverty.

## Reforms to date and options looking forward

Although a number of East Asian and Pacific countries have undertaken major pension reform efforts since the East Asian financial crisis of 1997, many challenges have still not been addressed. This section first reviews pension reforms in East Asia and Pacific, some of which were touched upon earlier in the chapter, then outlines key reform recommendations. These recommendations deal mainly with changes to existing parameters and, in some cases, to the integration of the

separate systems for civil servants and private sector workers. The last subsection looks at more fundamental measures to move away from the traditional social insurance approach that is starting to fail in some parts of the region even before countries have grown old.

## Reforms since 2000

Over the past 15 years, pension reforms in East Asia and Pacific have been diverse in terms of the relative focus on coverage, adequacy, and sustainability. Reforms tended initially to focus on sustainability and included new approaches to funding as well as reduction in liabilities through benefit reductions. In contrast, efforts in the past 10 years have been much more focused on expanding coverage and improving adequacy, at least in terms of alleviating poverty in old age. Table 5.7 lists the pension reforms that have taken place in the region since 2000.

In both DB and DC systems, most reform activity has taken place in the past 15 years, in the period following the 1997 East Asian financial crisis. For example:

- Indonesia and Lao PDR passed major pension legislation affecting DB systems during this period. In Lao PDR, a mandate for private sector workers was introduced in a 1999 law and has subsequently been implemented. The DB scheme uses a point system to determine benefits and has a number of well-considered parameters. The Indonesian law represented a fundamental departure from historical pension policy by introducing a DB component with much higher benefit targets (along with significant modification of the DC element). However, implementation has been severely delayed, and 10 years after the law was passed, key parameters have only just been determined. The implications for adequacy and sustainability,

**TABLE 5.7 Pension reforms in East Asia since 2000**

Late 1990s–2005	2006–2010	2011–present
<ul style="list-style-type: none"> <li>• <b>China.</b> Introduction of new individual account, creation of National Social Security Fund</li> <li>• <b>Hong Kong SAR, China.</b> Introduction of private defined contribution schemes</li> <li>• <b>Indonesia.</b> Passage of Social Security Law</li> <li>• <b>Japan.</b> In 2000—increase in retirement age, shift to price indexation, reduction in benefits; in 2004—modification of indexing to automatically stabilize, increase in budget subsidy for basic pension to cover one-half of benefit (as of 2014), gradual increase in contribution</li> <li>• <b>Republic of Korea.</b> Implementation of reforms passed in 1998 that include gradual increase in retirement age and reduction in benefit levels</li> <li>• <b>Lao PDR.</b> Implementation of 1999 law introducing mandate for private sector</li> <li>• <b>Mongolia.</b> Implementation of 1999 law introducing notional accounts</li> <li>• <b>Vietnam.</b> Extension of mandate to private sector workers (1995)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>China.</b> Creation of rural pension program</li> <li>• <b>Republic of Korea.</b> Gradual reduction (from 2009 to 2028) in replacement rate of national scheme, introduction of social pension</li> <li>• <b>Singapore.</b> Introduction of “workfare income supplement” for low-wage workers</li> <li>• <b>Thailand.</b> First expansion of social pension</li> <li>• <b>Timor-Leste.</b> Introduction of social pension</li> <li>• <b>Vietnam.</b> Introduction of social pension</li> </ul>	<ul style="list-style-type: none"> <li>• <b>China.</b> Massive expansion of rural pension program, introduction of urban resident pension scheme</li> <li>• <b>Indonesia.</b> Passage of law on social security administrators, significant improvement in legal structure and governance, issuing of new regulations (June 2015)</li> <li>• <b>Japan.</b> Expansion of welfare payments for low-income pensioners</li> <li>• <b>Republic of Korea.</b> Reduction in civil servant pension replacement rate</li> <li>• <b>Malaysia.</b> Increase in contribution rate for employers for lower-income workers, establishment of voluntary individual defined contribution scheme with initial matching contribution</li> <li>• <b>Myanmar.</b> Passage of Social Security Law</li> <li>• <b>Philippines.</b> Introduction of scheme for informal sector workers in 2012</li> <li>• <b>Singapore.</b> Increase in retirement age and tightening of withdrawal conditions; increase in contribution rate</li> <li>• <b>Thailand.</b> Second expansion of social pension to almost universal, establishment of National Saving Fund and Social Security Office scheme for informal sector</li> <li>• <b>Vietnam.</b> Revision of social insurance law to introduce automatic indexation, reduce accrual rate, apply slightly higher penalty for early retirement, and narrow gap between public and private sector replacement</li> </ul>

Source: Palacios 2015.

as well as the indirect impact on labor and capital markets, remain to be assessed.

- China's shift from a DC system to a hybrid DB/DC system with individual accounts implied a major policy change in terms of prefunding (at least nominally) and the nature of benefits. Mongolia's law in 1999 also fundamentally changed how benefits would be calculated by moving to an NDC system. As discussed earlier, in neither case have the reforms unfolded as planned. In China the funds allocated to the new individual accounts have not in practice been segregated in most parts of the country and are used to pay accrued benefits. In Mongolia, spending in 2012 reached close to 4.9 percent of GDP, exceeding projections made after the reform that spending in 2012 would be around 3.2 percent of GDP. The introduction of the mandatory DC scheme in Hong Kong SAR, China, in 2001 was another important milestone for individual accounts in the region, which contrasts sharply with the developments in mainland China. Nowhere is the "one country, two systems" approach more evident than in pension policy, with Hong Kong SAR, China, amassing close to a third of GDP in assets in just over a decade.
- The most comprehensive reforms to an existing system during this period took place in Japan. All major parameters were adjusted: retirement ages were increased, indexation was changed, and benefits were reduced. Most important among those were (a) the introduction of an automatic stabilization mechanism that reduced future benefits to offset increases in dependency ratios and (b) an increase in the consumption tax that was earmarked to partly pay the basic pension. Together, these measures appear to have achieved long-term financial sustainability (Kashiwase, Nozaki, and Tokuoka 2012). Reforms in Korea were passed in the midst of the financial crisis, but only a decade after the scheme started, the government acknowledged that the original parameters were not sustainable. What was impressive was the focus on long-term projections produced by the National Pension

Service itself and the public debates that took place. The result was an increase in the retirement age and reduction in benefit levels, with further reduction in accrual rates in the 2007 reform. Very few countries have made such farsighted reforms at a stage when the scheme is immature and running large surpluses.

The period 2006–10 was notable for the spread of noncontributory or social pensions in East Asia and Pacific (see Rofman, Apella, and Vezza 2014 on Latin America). This was a major element in the 2007 reform in Korea and resulted in a huge increase in coverage. As discussed earlier, China and Thailand also followed a policy of extending social pension coverage to the vast majority of those not eligible for contributory pensions. More recently, Japan significantly expanded social assistance for pensioners. The most ambitious social pension was introduced in Timor-Leste, which joined a substantial number of countries with universal social pensions, including Fiji, Mauritius, New Zealand, Samoa, and Tonga. The 2007 Workfare Income Supplement in Singapore took a different approach, with the government supplementing wages and retirement savings for low-income workers, significantly raising replacement rates for these workers (see Choon and Tsui 2012).

The most important pension reforms since 2011 have aimed at expanding coverage. Myanmar's Social Security Law includes, for the first time, a mandated contribution by private sector workers and employers. Thailand introduced two schemes to bring informal sector workers into the pension system, both with significant subsidies to encourage take-up, and Timor-Leste introduced a civil service pension scheme. The most dramatic development, however, has been the massive increase in coverage in China in the past five years thanks to the reform that links voluntary contributions from informal sector workers to provision of a social pension for both workers and their parents. By the end of 2014, just under 500 million rural and urban informal workers contributed, and 140 million elderly were receiving basic pensions.



## Recommended reforms

### *Parametric reforms*

Across East Asia and Pacific, ongoing reforms of existing contributory systems are needed to make the systems sustainable and to create fiscal space for expanding pension system coverage. Figure 5.19 shows that the contribution rate required to pay for the DB in each country is significantly higher than the actual contribution rate, with the exception of Japan. Because contribution rates have risen over time in most of these countries, the gap was even larger during the early years of schemes. Payroll tax rates at these levels would encourage evasion or unemployment, and most countries would either have to use other financing sources or reduce benefits. This was the conclusion of Korea's reformers in two rounds of parametric reforms that ultimately reduced the target benefit from 70 percent to 40 percent over a roughly 30-year period.

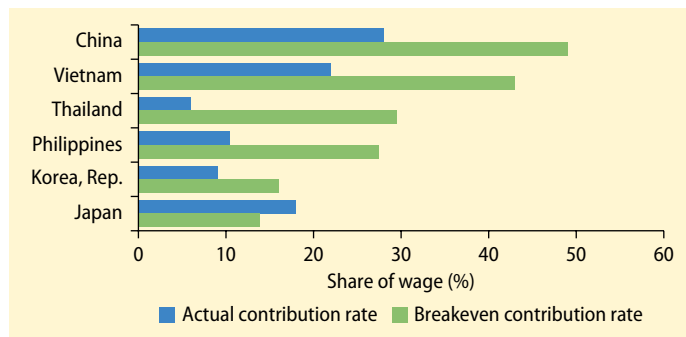
Some consensus exists over desirable parametric reforms for existing pension systems, which are particularly pressing priorities in the middle-income countries. The following seven parametric measures have all been implemented in a range of OECD and Eastern European and Central Asian countries over the past two decades, but much less widely in East Asia and Pacific:

- Moving away from final salary and toward lifetime, revalued average wages as the base wage for calculating replacement rates
- Using linear accrual schedules
- Indexing pensions to changes in prices
- Having minimal vesting requirements
- Linking retirement-age changes to life expectancy
- Equalizing retirement ages for men and women
- Providing actuarially fair (neutral) incentives for early or late retirement

The first four measures relate to the benefit formula used to calculate the value of the pension and how it is adjusted. Longer averaging periods, linear accrual rates, and short vesting periods reduce distortions and favors toward certain workers. For example, final

**FIGURE 5.19** Except in Japan, contribution rates required to pay for defined benefits are significantly higher than actual rates

*Actual versus required contribution rates for public pension schemes*



Source: OECD 2013.

Note: The Japanese contribution rate refers to 2017.

salaries are typically higher relative to lifetime salaries for high-income workers, giving them a better rate of return than is provided to low-income workers. Price indexation provides protection against inflation and eliminates the arbitrary treatment of different cohorts that can occur when adjustments are discretionary, as is current practice in several East Asian and Pacific pension systems. Almost all OECD countries have reformed their DB schemes in this way, although reforms in civil service schemes typically lag those of national schemes.<sup>48</sup>

The last three measures are related to eligibility. Again, most OECD countries are using these kinds of parameters, at least in their main national schemes. Lower retirement ages for women increasingly is recognized as leading to lower pensions for them. It is also clear that life expectancy has increased significantly since retirement ages were set decades ago and that people can work longer than they did earlier. The average retirement age in OECD countries has been rising gradually over the past 15 years, and legislation already passed will continue to increase normal retirement ages.<sup>49</sup> Retirement ages of men and women also are converging (figure 5.20). One of the perceived advantages of notional defined contributions, the approach followed in Italy, Latvia, Poland, and Sweden, is that the value of the pension is automatically adjusted according to age of retirement and

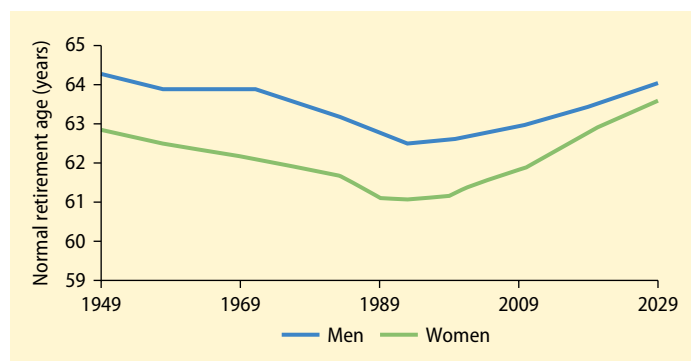
takes life expectancy changes into account. However, other mechanisms can achieve the same result, as described in box 5.1.

East Asian and Pacific countries are at different stages in implementing parametric reforms. These types of changes have been thoroughly implemented in Japan and Korea, and Mongolia's new NDC scheme addresses many of these parametric issues. In all other countries, the seven parametric measures described above are relevant. Retirement age reforms have been recommended for many years by many experts in

East Asia and Pacific, but with the exception of Japan, Korea, and Singapore, little progress has been made. The arguments for increasing and equalizing retirement ages, linking them to future changes in life expectancy, and rewarding voluntary later retirement are most relevant for China, Mongolia, Thailand, and Vietnam. Such reforms are gradual, and in the OECD (including Japan and Korea), they have been phased in over years, even decades. It will also be an important design choice for new schemes in Indonesia, Lao PDR, Myanmar, and Timor-Leste, where policy makers are in the midst of making decisions and should avoid the temptation to legislate low retirement ages.

**FIGURE 5.20 Retirement ages for men and women are converging in OECD countries**

*Retirement ages, 1949–2029*



Source: Chomik and Whitehouse 2010.

Note: OECD = Organisation for Economic Co-operation and Development.

### *Integration of civil service pension schemes*

In terms of labor market, equity, and fiscal effects, deepening the integration of civil service pensions is also a priority in East Asia and Pacific. Among the East Asian and Pacific countries reviewed, seven have parallel civil service schemes, and three have schemes for only civil servants.<sup>50</sup> A few countries, including China and the Philippines, have multiple schemes for public sector workers. All these countries have scope for reforms that shift toward an integrated national pension plan. The arguments for such reforms include the potential for reducing administrative costs (especially in countries with low numbers

## **BOX 5.1 Automatic adjustments for changes in life expectancy in defined benefit schemes**

In the past decade, at least 20 Organisation for Economic Co-operation and Development countries have introduced parametric reforms linking the scheme's parameters to changes in life expectancy. In Finland and Portugal, benefits will be reduced by a factor that is directly related to life expectancy. The link is less direct in Germany, where benefit adjustment is based on the ratio of pensioners to workers. Pensioners living longer translates into a lower value of initial pensions. Italy and Greece will link their retirement age to life expectancy starting in 2015 and 2020, respectively.

France has linked the minimum contribution years required for retirement to life expectancy.

The adjustment in Japan as part of the 2004 reform was quite different. A reduction of 0.9 percent in the benefit at retirement is being applied each year through 2023 based on the estimated increase in life expectancy during this period. However, the reduction is not adjusted if the estimate turns out to be lower or higher than the actual change.

Source: Based on OECD 2011.



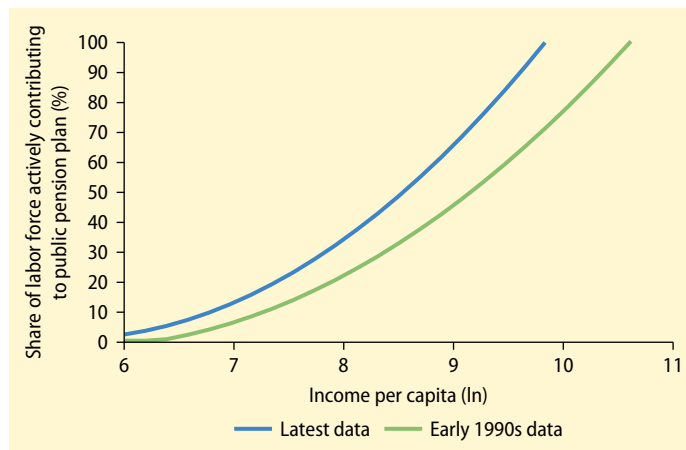
of contributors) and ensuring portability of benefits between public and private sectors. Another argument in favor of integration is based on equity grounds but also has implications for government spending when public sector workers have substantially more generous pensions than private sector peers. Reforms have generally sought to reduce this disparity by bringing public sector workers into the main national scheme, which is usually more financially sustainable and can help create fiscal space for initiatives designed to reach informal sector workers.

Integration is more challenging where the disparities between public and private pensions are substantial, as in China and Thailand currently. An intermediate step would be to follow the example of Vietnam, where parametric reforms to the civil service scheme will gradually result in equivalent benefit levels in the long run. A complementary approach that was proposed in China's reforms announced in 2015 would be to integrate the main pension scheme but allow for supplementary occupational schemes for civil servants, to avoid dramatic falls in generosity across cohorts. Another approach would be to ensure portability between public and private sector schemes, as the Philippines has done. Whatever the approach taken, civil service pension reform should ideally take place in the context of an overall compensation review, as was done in Hong Kong SAR, China, when new civil servants were put into the DC system.

Countries currently without national pension schemes should avoid creating parallel schemes for the public and private sectors. Cambodia and Myanmar are considering establishing parallel schemes for private sector workers, but the number of workers likely to contribute to each of these schemes is less than 1 million. Lao PDR introduced a new scheme for private sector workers in 1999 that had fewer than 100,000 contributors. A new civil service pension scheme is being implemented in Timor-Leste, but the government is considering a national scheme. In light of limited financial resources and administrative capacity, countries' creating parallel pension schemes is difficult to justify.

**FIGURE 5.21** Expanding coverage has become difficult in recent years

*Predicted labor force coverage by income level, 1994 versus 2014*



Sources: World Bank 1994; World Bank Pensions database, <http://www.worldbank.org/pensions>.  
Note: Data are from the early 1990s and most recent available.

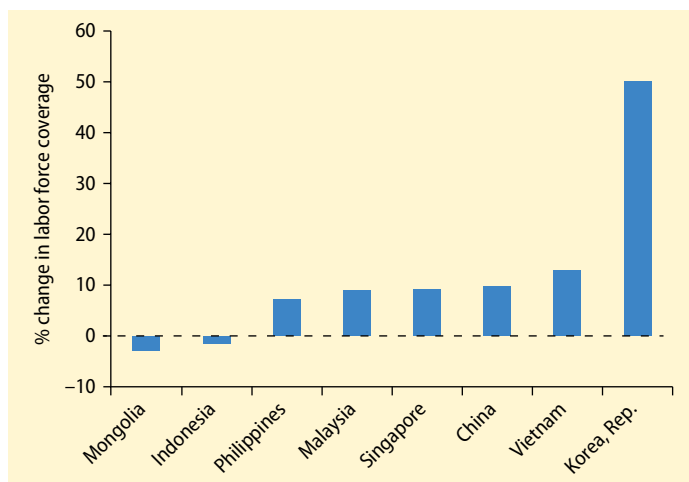
### *Reforms to expand coverage*

The relationship between the coverage rate of contribution-based pension schemes and the income per capita of countries has remained strong for at least several decades, globally and in East Asia and Pacific. With the exception of the recent expansion of the pension scheme for rural and informal urban sector workers in China, no country has managed to bring a significantly larger proportion of its workers into a contributory scheme than would have been expected given its income level. Moreover, the data behind figure 5.21 suggest that doing so has become more difficult over the past 20 years.

Consistent with global experience, the increase in coverage of contributory pension systems in East Asia and Pacific has been very gradual and is highly unlikely to keep pace with population aging. Figure 5.22 shows the percentage change in the share of the labor force contributing to a pension scheme from the early 1990s to around 2010 (the figure for China does not include the new voluntary pension program). It shows that coverage has been stagnant in Indonesia and may have even fallen in Mongolia, and the increases in other countries are less than one percentage point per year. The increase

**FIGURE 5.22** The increase in coverage of contributory pension systems in East Asia and Pacific is unlikely to keep pace with population aging

*Change in mandated contributory pension coverage from the early 1990s to around 2010*



Source: World Bank calculation in Palacios 2015.

Note: China excludes rural and urban resident pension schemes.

in Vietnam is partly related to the expansion of coverage to private sector workers and therefore is a “one-off” event. Global experience indicates that per capita income growth of 6 percent per year over the next 20 years would result in income levels consistent with less than 40 percent coverage in Indonesia, the Philippines, and Vietnam. In other words, to reach income levels consistent with full coverage would take roughly 50 years, and even longer in the poorest East Asian and Pacific countries. With the exception of Korea, the available evidence suggests that without a fundamental change in approach, population aging will have taken place in most of the countries long before contributory pension schemes are able to provide broad-based old-age income security.

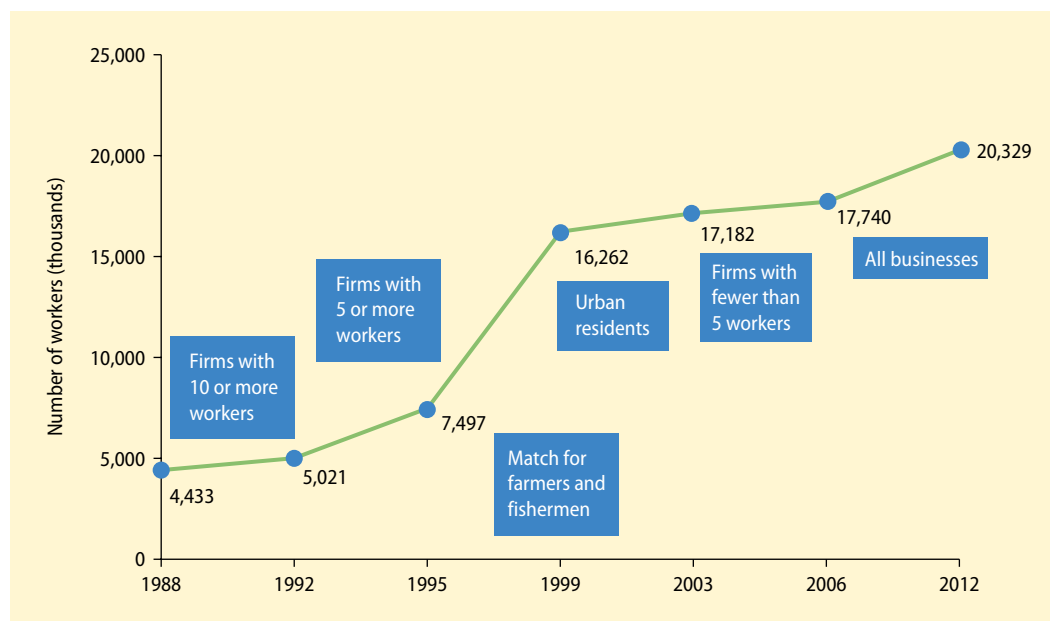
Korea’s dramatic coverage increase took place thanks to legislative changes over the past 20 years. Four years after it began, the NPS reduced the size of firms required to participate from 10 employees to 5 employees. Seven years later, it reduced the size of firms to those with fewer than five workers and finally included all self-employed workers.

Since 1995, the government has provided matching contributions to farmers and fisherman, increasing their participation significantly (Moon 2013).<sup>51</sup> The result of the policy changes is shown in figure 5.23. From 1988 to 2012, labor force coverage rose by about 50 percentage points.

Frustration with the pace of expanding coverage has led to at least two types of government interventions in the region and globally, the first being the introduction or expansion of social pensions as discussed earlier. Social pensions can help address elderly poverty in the short run, but they present two major challenges: cost and incentives.<sup>52</sup> As described earlier, Timor-Leste has the most expensive social pensions in East Asia and Pacific because benefits are relatively large and eligibility is universal at age 60. In contrast, China; Hong Kong SAR, China; Korea; and Thailand minimize costs by paying very low benefits to a large share of the elderly, achieving high coverage but not ensuring adequacy. Other countries control costs by providing transfers to a very small fraction of the elderly (for example, the Philippines and Vietnam) or by providing nothing (as in Indonesia and Myanmar).

In countries that already cover a large proportion of the elderly population with social pensions, such as China and Thailand, benefit levels could be increased at relatively low cost. For example, doubling the social pensions in Thailand would cost approximately 0.4 percent of GDP per year. Lu, He, and Piggott (2014) calculate that raising the rural social pension benefit in China to a level of benefits equal to the poverty line would cost between 0.5 and 1.5 percent of GDP per year over 40 years. Starting at a higher level to address absolute poverty but indexing these pensions to prices would, over the long run, control the cost relative to budget resources in a growing economy. China is already moving in this direction with the 27 percent increase in 2014 in the basic pension for informal workers, to around US\$11.30 per month.

A similar case could be made for expanding coverage of social pension schemes in the Philippines and Vietnam. However, these countries also have social assistance programs

**FIGURE 5.23** In the Republic of Korea, a dramatic change in coverage took place*Number of workers covered by Korea's National Pension Service, 1988–2012**Source: NPS 2012a, 2012b.*

that operate in parallel to the social pension. Another option may be to consolidate programs as the overall budget envelope is increased and to use a common targeting approach and delivery platform.

In lower-income countries such as Cambodia or Myanmar, which have neither social pensions nor significant social assistance programs, the best approach may be to expand targeted social assistance programs. Survey data suggest that most poor elderly reside with families. Thus, a well-targeted transfer will tend to reach the elderly poor, achieving the same objective as a social pension while addressing broader antipoverty objectives. In such cases, a social pension is unlikely to reduce poverty more than a program that determines eligibility based on poverty rather than age. Notably, transfers made to the bottom segments of the income distribution are unlikely to reduce formal sector activity in countries where contributory pension scheme coverage does not exceed 10 percent of the labor force. These workers simply do not have the choice to move in and out of the formal sector.

One risk of expanding social assistance or social pensions in all but the poorest countries can be the increased incentive to stay in the informal sector.<sup>53</sup> In Thailand, for example, the fact that a person has any pension from a formal sector scheme negates eligibility for the social pension. If the value of the social pension were to rise significantly, so would the effective tax on contributions to the public pension scheme. A better approach where capacity exists would be to withdraw the transfer gradually at higher income levels. This was done in Chile as part of reforms in 2008 that expanded the social pension to cover the bottom 60 percent of the distribution (see box 5.2). It reduced incentive problems significantly relative to imposing an effective 100 percent marginal tax on formal wages and pensions.

Another approach to expanding coverage is to subsidize contributions of low-income and informal sector workers. Some international evidence suggests that matching contributions can increase coverage at the margin (see Hinz et al. 2013). In Korea, for example, matching contributions for fishermen and farmers were

### BOX 5.2 Integrating noncontributory and contributory pensions: Chile's solidarity pillar

Chile introduced a noncontributory (“solidarity”) pension in 2008 that would complement the existing contributory pension system. In 1981, it had replaced its traditional defined benefit pay-as-you-go pension system with a defined contribution system with individual accounts managed by specialized private firms. Two types of noncontributory benefit existed: (a) a social assistance pension targeted to the lowest income quintile of the population, with eligibility precluded if a person had any other source of pension, and (b) a minimum pension guarantee for pension fund contributors who had attained only low balances after at least 20 years of contributions.

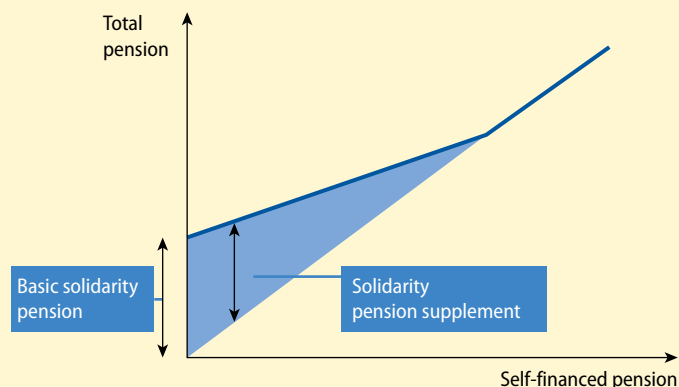
By 2006, it was clear that although the system had been very successful in obtaining high real rates of returns for the pension funds, pension levels would not be adequate for a large portion of the population. Most members of the system did not contribute frequently enough to build a large balance. Although the proportion of the labor force that worked in the formal sector was relatively high at around 60 percent, only a minority held steady jobs in the formal sector. Bernstein et al. (2006) estimated that around 50 percent of members would receive a pension lower than the minimum pension, and many would not reach the 20 years of contributions required for the pension guarantee. At the same time, many of these individuals would not be poor enough to qualify for the social assistance

pension. As a result, low- to middle-income individuals fell into a “coverage gap.”

Chilean policy makers faced a trade-off between providing income protection and reducing incentives to save. The new solidarity pillar had to be designed to be compatible with incentives to contribute to individual accounts. Since neither the existing social assistance pension nor the minimum pension guarantee provided adequate income support to alleviate poverty in old age, policy makers decided that the new pillar would replace both programs. To maintain some incentives to contribute, the benefit was designed not as an absolute minimum floor guarantee but as a minimum pension for individuals with no contributions plus a top-up for individuals with some contributions. The amount of the top-up would be reduced depending on the level of the contributory pension. The reduction was designed so that the total pension (the sum of the contributory and noncontributory pensions) would always be increasing along with the balance accumulated in the individual account.

Operationally, the new solidarity pillar was composed of two benefits: (a) the basic solidarity pension for individuals with no contributions and (b) a solidarity pension supplement, which is the top-up for individuals with some contributory pension. In other words, the new solidarity pillar was designed as a minimum pension benefit with a clawback, as shown in figure B5.2.1.

FIGURE B5.2.1 Design of the Chilean pension system



found to have increased participation by around 10 percentage points. Under the Malaysia Retirement Savings Scheme, established as an incentive scheme for the self-employed and for individuals without fixed monthly income they could save for retirement, the government provides a matching contribution of 10 percent of the contribution, subject to a maximum. However, only just over 73,500 individuals have participated since the scheme was introduced in 2010, consistent with the modesty of the match (see Dorfman 2014; Samad and Mansor 2013). Thailand has introduced two pension programs for informal workers, which are administered by separate ministries (see World Bank 2012b). One is an extension of the DB scheme run by Thailand's SSO, and the other is a DC scheme that provides matching contributions ranging from 50 percent below age 30, to 80 percent between ages 30 and 50, to 100 percent at age 50 and above, with a required contribution of less than US\$2 per month. Almost 1.4 million people had signed up for the SSO scheme as of March 2013.

China's experience in combining a social pension with a matching contribution to workers illustrates both the potential and limitations of matching contributions to expand coverage. A flat amount, initially around US\$9 per month (US\$11.30 per month from mid-2014), is paid as a basic pension to those ages 60 and above living in rural areas and to informal urban workers with a local residence permit (*hukou*). Eligibility for those already over 60 is contingent on having working-age spouses or children who contribute to their own pension accounts (a process referred to as *family binding*, though implementation demands appear to have resulted in weak enforcement of this requirement) (Dorfman et al. 2013). The massive enrollment that has taken place demonstrates the feasibility of collecting small amounts from informal sector workers; however, without better returns and more direct incentives (for example, a higher match), many will remain outside the system for much of their working lives, and benefits will be inadequate.<sup>54</sup> At the same time, subsidizing individual accounts results in an opportunity cost, notably in the form of lower social

pensions than might otherwise have been paid. In China more than in most countries, strong arguments can be made for a larger social pension, given the huge disparities in pension levels across different schemes as well as the economic effects of excess savings.<sup>55</sup>

In the poorest countries in the region, matching contributions are unlikely to be the best use of scarce fiscal resources. In these countries, the trade-off is more acute when it involves spending more on social assistance or social pensions or diverting funds into individual accounts. This trade-off is particularly difficult if subsidies cannot be targeted effectively, since higher-income informal sector workers will benefit most. Furthermore, the lack of a financial and institutional infrastructure that can channel savings is more problematic in countries like Cambodia and Myanmar than in China.

Matching contributions may work better in countries where extensive, well-targeted programs already exist and where the infrastructure for a DC scheme is already functioning. The conditional cash transfers program in the Philippines provides a database that could be used to target subsidized contributions, and it has a sophisticated system for delivering transfers that could be exploited to collect contributions. However, the country lacks the infrastructure for administering and regulating other elements of a DC scheme. Legislation in Vietnam envisions a DC scheme (with a match) for informal sector workers, but it has not yet been implemented. The outcomes will depend on the incentives provided as well as on the administrative infrastructure available to collect, track, and invest these funds.

### *Options for changing the paradigm*

The attempt to address the coverage gap in East Asia and Pacific is part of a global pattern occurring over the past decade or so for policies that move away from a sole reliance on payroll taxes for financing pensions. As discussed in the previous section, financing the expansion of social pensions and matching contributions for informal sector workers from the budget is a response to the persistent failure of contributory pension schemes to

close the coverage gap. Meanwhile, the use of consumption taxes in Japan and budget support for the contributory pension scheme in China is partly driven by reluctance to raise payroll tax rates further. The trend is not uniform, however, as evidenced by the introduction of a social insurance scheme in Lao PDR and by legislation in Indonesia and Myanmar. Although these countries are among the last to have followed the social insurance-based path to provide pensions, the experience of dozens of countries that once faced the same choice suggests that it may not be the appropriate path.

A way forward in pension reform can instead be based on the premise that the redistributive element of the pension system should be financed from general revenues and clearly distinguished from the insurance or savings component (World Bank 1994). The latter would ideally be financed by individuals on an actuarially fair basis. The simplest approach would be to eschew the mandated scheme altogether and instead have a social pension with broad coverage (for example, universal or affluence-tested coverage), complemented by a voluntary retirement savings scheme. This approach is the situation in New Zealand, which also features an opt-in default for a voluntary DC scheme that has led to relatively high participation rates. However, this option is not likely to be accepted in countries that are about to introduce mandates, and it may face resistance in countries with existing mandates.

Another option, first proposed in the context of Mexico, is for the government to contribute a minimum amount to individual accounts that would be opened for every adult citizen. The government's contribution would be calibrated to produce an accumulation of funds sufficient to pay an annuity equivalent to the social pension, phased in gradually.<sup>56</sup> Social pensions or broad social assistance could provide for the current elderly and transition cohorts until the individual account system matures. The result would be a gradual transition from an unfunded social pension to minimum annu-

ties or phased withdrawals based on individual accounts.

This approach could be tailored to the initial conditions of each country. In a country with low mandated contributions and benefit targets (such as Thailand), individual accounts could supplement the contributory pension. Because the individual account-based pension would be the same for all workers, the effect on replacement rates would be greater for low-income workers. In a country with higher benefit targets and required contribution rates (such as Vietnam), the latter could be reduced proportionately as the new universal individual account fills the gap, achieving the same replacement rates but with less reliance on payroll taxes. Similarly, in countries that operate DC schemes, this approach would simply involve a reduction in employees' contribution by the flat amount contributed by government. This method would increase take-home pay and reduce the tax wedge more for low-income workers by acting as a progressive wage supplement and encouraging workers with low wages into the formal sector, as done in Singapore. In the high-coverage DB schemes in Japan and Korea, financing the basic pension with other taxes would achieve the same objective without the need for individual accounts. Japan's earmarking of consumption taxes to finance the basic pension is already a step in this direction.

In some East Asian and Pacific economies, fiscal constraints or governance challenges may make prefunding difficult or impractical. A government contribution to a funded scheme for all adult citizens would eventually require an allocation of several percentage points of GDP. The resources would have to be identified and effectively earmarked. In resource-rich economies where sovereign funds exist (such as Mongolia and Timor-Leste), financing could involve earmarking of revenues for this purpose. Regardless of the source, allocating scarce resources to this purpose involves significant fiscal trade-offs. However, good equity and efficiency arguments can be made for shifting from payroll taxes to other revenue sources, especially where the tax wedge is large and where the relative taxation

of factors of production is currently overly reliant on labor (as in China and Vietnam).

Important challenges related to governance and potential investments would also have to be addressed. If centrally managed, addressing those challenges would result in the accumulation of a fund that was very large relative to the economy. Many economies have limited capital markets and may find investing abroad difficult. It is also difficult to avoid conflicts of interest, ensuring that investments are not motivated by reasons other than good pension outcomes. The international experience with the management of large public pension funds does not provide many positive experiences in this regard (Iglesias and Palacios 2001). If the individual accounts were managed by competing private managers, as in Hong Kong SAR, China, the government's role as regulator and supervisor would be crucial, and few economies in the region have the required capacity.

Governments have two alternatives to pre-funding. The first is the NDC approach, in which accounts are credited with contributions but have no segregated assets.<sup>57</sup> The second would be for the government to simply issue government bonds that would be deposited into individual accounts. These would be special, nontradable bonds and could be linked to growth of GDP or income per capita. The impact of the latter approach on national savings depends on the overall fiscal adjustment, which could range from complete tax financing to complete debt financing.

## Conclusion

A paradigm shift is needed (and already under way) in how pension systems in East Asia and Pacific are designed and financed. As discussed throughout this chapter, a growing number of countries, frustrated with the traditional model of contributory pensions that dominated the last century, are finding ways to plug the coverage and adequacy gaps with programs financed by general revenues. These programs break the link between formal employment and pension (and health insurance) coverage. Timor-Leste is the most dramatic example,

but the same approach is evident in Korea and Thailand. The new scheme in China that links social pensions and a government contribution to individual accounts is the most important example of what may represent a paradigm shift in pension provision, not only in East Asia but also globally.

The reform agenda for the low- and middle-income countries of East Asia includes improving existing pension systems, such as parametric changes and harmonization or integration of parallel schemes, as well as expanding coverage of the informal sector. The design of pension schemes and especially their retirement incentives can significantly affect labor force participation rates and should be reformed to encourage longer working lives as healthy life expectancy rises. However, historical experience suggests that these reforms can provide only part of the solution and that a comprehensive plan will include programs that can reach the majority of people who operate in the informal sector. This observation is especially true in those countries where the race between coverage and aging is already well under way.

## Notes

1. However, the civil service pension schemes of Indonesia and Malaysia have significant unfunded liabilities.
2. Zuo (2013) calls these "empty individual accounts" and estimates them at 90 percent of recorded contributions.
3. These accounts mimic DC schemes but are not funded. Individual accounts are credited with contributions that then earn a notional interest rate that is typically linked to the growth of wages or the wage bill. See Holzmann and Palmer (2006) for a review of international experience.
4. Amendments in 2014 in Vietnam introduce automatic price indexation.
5. The Mandatory Provident Fund Authority is proactive in terms of financial literacy and making improvements to the system, for example, introducing life-cycle investment options.
6. Conceptually, the unfunded liability is the present value of future pension obligations. The financing gap is the difference between



- the present value of contributions and pension payments. Unfortunately, international standards for reporting these key measures of sustainability for public pension schemes do not exist.
7. China has had a distinct scheme for workers in public sector units, although the State Council in early 2015 announced its intention to merge civil service, public sector units, and urban worker schemes. The system relies on occupational supplements to avoid a dramatic fall in replacement rates for civil servants.
  8. Although Vietnam has one pension scheme for all workers, a case is made for including it in this first group because of the practice of calculating benefits of the two groups of workers using a different methodology, though 2014 reforms seek to reduce the disparity over time.
  9. Although civil servants participate in the same scheme as private sector workers, the government contributes more than private sector employers are required to contribute.
  10. In Japan, the systems for civil servants and private school employees are to be merged with the system for private employees on October 1, 2015.
  11. As of April 2015, a new social security law that would cover all formal sector workers was still being discussed.
  12. Note that the median age of civil servants tends to be higher than private sector workers.
  13. The Philippines is an exception in this regard, having passed a portability law in 1994 that makes it possible to combine service periods (Mesa-Lago, Viajar, and Castillo 2011).
  14. Mesa-Lago, Viajar, and Castillo (2011) also advocate harmonization and integration of multiple schemes in the Philippines.
  15. In addition, Korea's mandated retirement benefit system provides a lump sum payment equivalent to 1/12th of annual salary per year of employment. However, this can be withdrawn by the worker prior to retirement and is therefore not defined here as part of the pension system. See the Korean law at <http://www.moleg.go.kr/english/korLawEng?pstSeq=47471>.
  16. See the Thai Securities and Exchange Commission's website at <http://capital.sec.or.th/webapp/thaipvd/apps/pvdreports2/stat12en.php>.
  17. See those programs at Malaysia's country profile at Wilmington PLC, <http://www.pensionfundsonline.co.uk/content/country-profiles/malaysia/102>. Dorfman (2014) cites March 2014 figures of about 70,000 registered members (about 0.5 percent of the labor force) in 44 private funds.
  18. A World Bank pension database covering 78 low-income countries revealed about 100 million contributors from a labor force of almost 900 million (about 11 percent).
  19. Because of the way public DB pensions are treated in the fiscal accounts, this challenge of sustainability is true even during the period when reserves are being drawn upon, at least to the extent that investments consist of government bonds. When a public DB pension scheme invests in government debt, this is seen as one part of government lending to another and is netted out of general government debt. To the extent that contribution revenues exceed benefit spending, this reduces the budget deficit in that time period. Conversely, when contributions are lower than spending, general government deficits increase even where earmarked bonds are redeemed to pay pension benefits (see Goebel, van de Ven, and Zwijnenburg 2015).
  20. Mongolia also allowed workers to "buy back" contribution years during the 1990s.
  21. Although pension coverage is almost universal in Japan, average effective retirement ages are higher than age 60.
  22. Data from 2011 for China are from CHARLS (2011).
  23. This approach has been used in OECD and Latin America and the Caribbean. They use prospective simulations for workers entering the scheme today, not what is actually paid out today. The aim is to compare the implied objectives of different designs.
  24. The difference between gross and net replacement rates is that the net replacement rate takes taxation into account. A standardized set of assumptions was used for wage growth, interest, and mortality rates. The figures are for men entering the system today with average wages throughout their careers and retiring at normal retirement age. For DC schemes, simulations convert account balances into annuities based on country- and sex-specific mortality rates.
  25. Because of the different life expectancies at retirement age across East Asian and Pacific countries, the present value of the target benefit, referred to as *pension wealth*, can be calculated. This method would change the rankings only slightly, with China becoming the most generous, followed by the Philippines. Pension wealth for women would



- also generally be higher in DB countries because women live longer than men and may have lower retirement ages.
26. In Indonesia and Mongolia, reforms are being implemented that represent a major departure from current rules. In Indonesia, new parameters will certainly increase the overall replacement rate target reflected in figure 5.7. In Mongolia, the replacement rates shown here are much lower than those for workers born before 1960, with the change from one cohort to the next being so dramatic that it has been cited as a potential problem.
  27. The guide to diversifying retirement income states, “Your EPF savings alone are not likely to be enough to support your retirement.” See KWSP (2012, 5).
  28. The conditions for withdrawal are five years of contribution and one month of unemployment.
  29. The calculation of replacement rates in Singapore has added complexity owing to a second account that can be used for housing or retirement and a third account that is used for medical services. Choon and Tsui (2012) show that replacement rates would be substantially higher if housing were properly taken into account.
  30. As noted earlier, countries without social pension programs include Cambodia, Indonesia, Lao PDR, and Myanmar. Aside from the subsidized food program in Indonesia, national social assistance programs are almost nonexistent in these countries.
  31. Indonesia provides free rice to more than half of households (although the new administration has announced that the scheme will be rationalized) and has a conditional cash transfer program for around 3 percent of the population. It also subsidizes health insurance for poor households. In the Philippines, more than 20 percent of households benefit from a conditional cash transfer program, and a larger proportion is covered by a targeted health insurance scheme.
  32. These crude comparisons hide significant differences in the scope of the wage bill to which they are applied, including the low earnings ceilings in Hong Kong SAR, China, and in Thailand. For the most part, however, the parameters do not affect the relative position of these economies.
  33. Japan’s current total contribution rate is 16.7 percent but is scheduled to rise to 18.3 percent by 2017.
  34. D’Addio, Keese, and Whitehouse (2013) find that Japan and Korea give higher compensation to late retirees than do all but a few OECD countries. Also see Giles, Hu, and Huang (2015) regarding East Asia and Pacific.
  35. Bloom, Canning, and Sevilla (2004) also find that the expectation that longevity gains will lead to longer working lives is not borne out by evidence.
  36. The analysis relies on national-level data, so it is not possible to separate LFPRs for urban and rural elderly for this sample. Controlling for the rural share in each country increases *R*-squared significantly (0.66) and reduces the coefficient of the spending variable.
  37. There are, for example, various studies from Italy, the United Kingdom, and the United States. The only study known to the authors of this report that includes East Asia and Pacific is Shome and Saito (1980). There is also evidence of crowding out when voluntary savings for retirement are provided tax incentives. See Kohl and O’Brien (1998) for a review of international studies.
  38. The authors also estimated a positive savings effect for the period 1960–80 resulting from additional savings for longer retirement duration. The net effect was 25 to 30 percent displacement of savings.
  39. See Onder and Pestieau (2014) for theoretical evidence.
  40. The four countries are Chile (Coronado 1997; Fuentes 2013; Schmidt-Hebbel and Servén 1998); Colombia (Villar et al. 2013); Mexico (Villagómez and Antón 2013); and Peru (Secada, Cusato, and Zapata 2013).
  41. In Thailand, the Government Pension Fund was introduced in 1997 to partially replace the DB scheme for civil servants. In the same year, China introduced individual accounts that were nominally funded but soon became “empty” accounts.
  42. A concentration in government bonds, especially nontradable bonds, can inhibit potential effects of pension funds on capital markets and savings. Both Malaysia and Singapore invest their provident funds in special government bonds. In Singapore, CPF purchases of nonmarketable bonds were issued specifically to the CPF. In contrast, Malaysia’s EPF holds state and corporate bonds, equities, and property, with only about one-quarter in government bonds.
  43. Preliminary projections based on the parameters being considered in Indonesia suggest that reserves could exceed 10 percent of GDP in 2030 and 25 percent of GDP by 2050.

44. The index focuses on the availability of reliable information required for independent monitoring as well as composition, independence, and qualifications of Board members.
45. Accountability is further promoted by competition between funds. The MPFA is especially concerned with the poor choice of investment options and the lack of awareness about the impact of administrative fees, so it has embarked on an ambitious educational campaign in the past few years.
46. For a recent example in Fiji, see Hofman and Chand (2012).
47. A key measure is the automatic adjustment mechanism, which reduces pensions depending on deviation from baseline projections.
48. In addition, disability pension reform has also been important in some countries, such as Poland.
49. As discussed in chapter 4, resistance to increasing the retirement age often stems from concern about the effect on employment of younger workers (known as the “lump of labor fallacy”), but regional and global evidence suggests that such concern is misplaced. See, for example, Zhang (2012) for China.
50. Indonesia plans to integrate civil servants into a hybrid DB/DC pension scheme. However, the process may begin only with civil servants hired after 2028. Observers see little justification for such a long transition period.
51. Despite this impressive achievement, even after the coverage expansion, close to one-third of the self-employed in Korea, mostly low-income workers, do not regularly contribute to the pension system.
52. See Barrientos (2012) for a thorough discussion.
53. Aterido, Hallward-Driemeier, and Pagés (2011) document similar effects on informal activity for noncontributory health insurance coverage in Mexico. Davis and Henrekson (2004) present similar data from richer countries.
54. The scheme suffers from some of the same implementation problems as individual accounts for formal sector workers. Specifically, rates of return are set at bank deposit rates, resulting in poor incentive to contribute and low balances at retirement.

Furthermore, although rules for portability have been issued, the highly decentralized system has no mechanism for ensuring this portability, which poses a major challenge in the face of mass rural-to-urban migration.

55. For example, Baldacci et al. (2010) estimated that an increase in government spending on pensions of 1 percent of GDP would raise permanent income by 1.25 percent of GDP.
56. A version of the proposal is still under consideration in Mexico.
57. See Cai et al. (2012) for a discussion of this approach in the context of China’s rural pension scheme.

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# Population Aging and Health Services in East Asia and Pacific

## 6

### Introduction

Population aging will have profound effects on the health sector throughout East Asia and Pacific. As discussed in chapter 1 of this report, population aging has been accompanied by an increase in exposure to risk factors that increase the likelihood of illness and disability in old age, specifically the prevalence of noncommunicable diseases (NCDs). Health care delivery systems in the region have common features that make them ill prepared for the NCD epidemic, especially among populations with rising shares of older people. Such features include a range of cost drivers that are likely to undermine fiscal sustainability, with or without aging in future years. Because age-specific health spending typically rises steeply toward the end of life, a common assumption is that aging will generate substantial increases in health care spending. However, the effects of aging on health expenditure are much more complex.

This chapter examines the health system challenges of responding to population aging. The first section provides an overview of

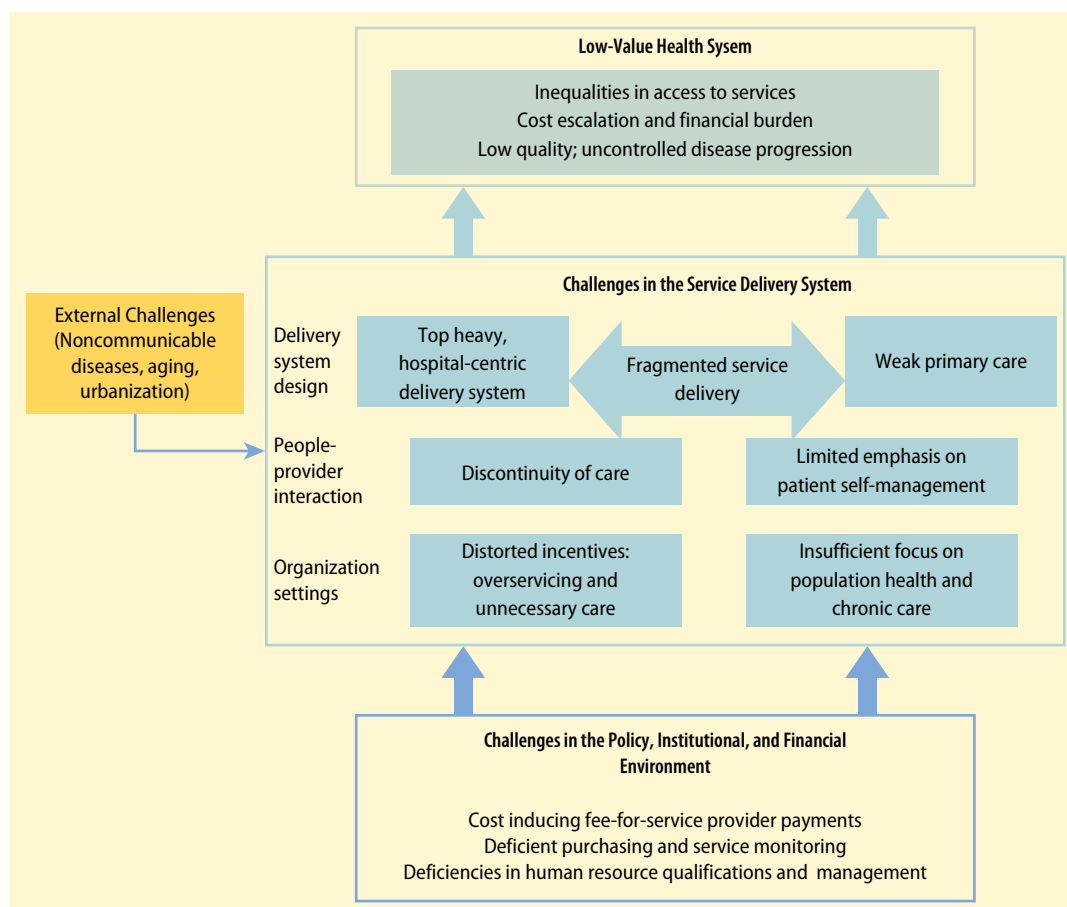
population aging and health service delivery challenges in East Asia and Pacific. The second section briefly discusses Universal Health Coverage, which is likely to exert major pressure on the region's health care systems in the context of population aging and NCDs. The third section delves into population aging and health expenditures in the region, examining whether health expenditure growth is being driven by aging itself and/or by other cost pressures. The fourth section provides recommendations for addressing these challenges in a manner that is fiscally sustainable and improves health care outcomes and quality for the elderly.

### Population aging and health service delivery challenges in East Asia and Pacific

Health care delivery systems in East Asia and Pacific face common challenges in three key domains: delivery system design, people-provider interactions, and organizational settings (figure 6.1). These weaknesses are already contributing to a low-value health

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This chapter is based on a background paper prepared by Aparnaa Somanathan (2015) and a literature review conducted by Harry Moroz, Naoko Miake, and Ying Ho.

**FIGURE 6.1** Health care in East Asia and Pacific faces major health system and service delivery challenges

Source: World Bank 2014a.

system where cost containment is a growing problem. Health care costs are a major financial burden on both governments and households. Moreover, the delivery of health services is characterized by inequalities, and quality of health services is poor. This section discusses each of the three challenges in turn and the way their effects are likely to be exacerbated in a rapidly aging population with a rising burden of NCDs.

### Weaknesses in delivery system design

Health systems in East Asia and Pacific are hospital centric. Hospital costs account for 40 to 70 percent of total health expenditures in

most economies (figure 6.2). For the majority of people living in the region, the first point of contact with the health system is usually at a hospital (around 53 percent in China). Furthermore, throughout the region, relatively simple health conditions such as hypertension and uncomplicated diabetes result in hospitalization. In China, according to estimates, between 30 and 50 percent of admissions could have been handled at an ambulatory care setting (World Bank 2014a). Yet, tertiary hospitals have registered higher growth for both inpatient and outpatient visits compared to primary and secondary hospitals (figure 6.3). As shown in table 6.1, of all outpatient visits to central general



hospitals in Vietnam, 35 percent could have been handled at provincial hospitals and 20 percent at district hospitals. Of all outpatient visits to provincial general hospitals, 41 percent could have been handled at district hospitals.

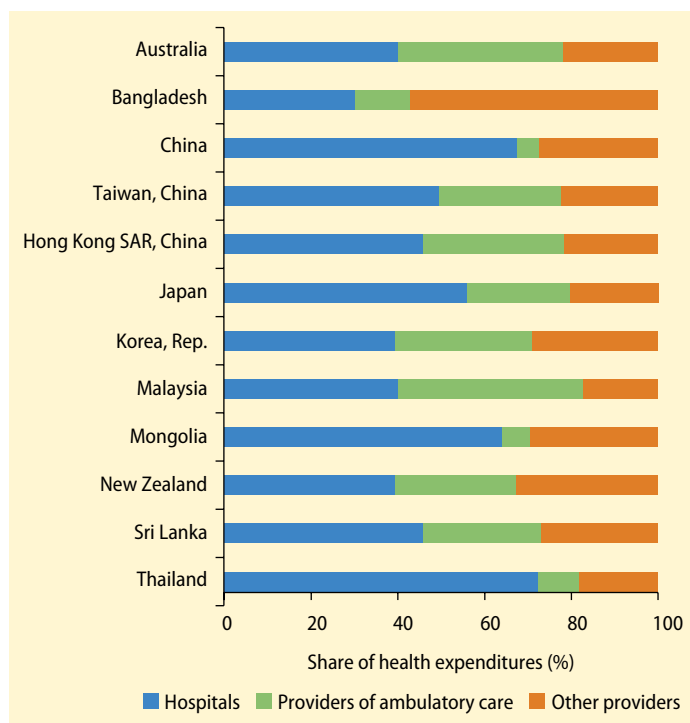
High average lengths of stay further contribute to the hospital share of total spending. As shown in figure 6.4, average lengths of stay in China, Japan, the Republic of Korea, and Mongolia are higher than the average in Organisation for Economic Co-operation and Development (OECD) countries.

The hospital bias is even stronger among the elderly. Health care utilization rates among the elderly are dominated by hospital inpatient care. Household survey data from China, Indonesia, Japan, and Vietnam (figure 6.5) show that inpatient admission rates increase with the mean age of household from about age 50 for both men and women, with a spike after age 65 in all countries. Analysis for China also shows that inpatient admissions for older households are far more likely to be in general and township hospitals and that most outpatient care is sought at hospitals. Outpatient utilization rates are much lower for the elderly (with the exception of Japan) and do not vary much with age. When coverage is more generous as in the Civil Servant Medical Benefit Scheme in Thailand, the elderly make even greater use of inpatient care. The spike in hospital utilization rates after age 65 and the high average lengths of hospital stays in older East Asian and Pacific countries such as China, Japan, and Korea suggest that acute care hospitals may be doubling up as nursing homes for the elderly. A very inefficient pattern of service delivery for the elderly emerges; expensive acute care hospitals provide services such as outpatient care and nursing home care that could be provided more efficiently in other settings.

The increasing hospital focus of health systems in the region can be explained in part by weaknesses in primary health care. By definition, primary care is the professional health care response when patients make their first contact with the health care system.

**FIGURE 6.2** Hospital share of health expenditures is often greater than nonhospital share

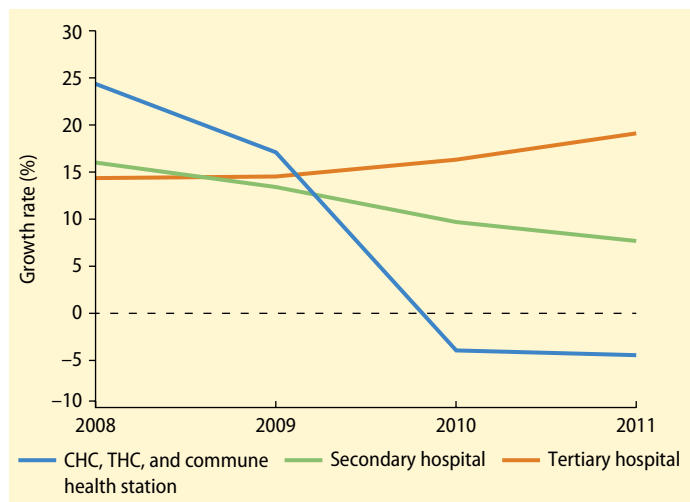
*Health expenditures by level of care, selected economies, 2012*



Source: Jeong and Rannan-Eliya 2010.

**FIGURE 6.3** Tertiary hospitals experienced the fastest growth of inpatient and outpatient visits in China

*Growth rate (percent) of inpatient admissions, 2008–11*



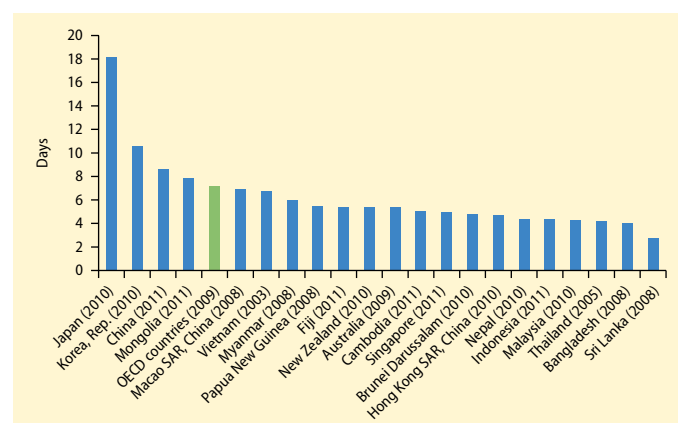
Source: World Bank 2014a.

Note: CHC = community health center; THC = township health center.

**TABLE 6.1** Hospital patients in Vietnam are being treated at higher levels than is necessary*Treatment of patients in hospitals in Vietnam, 2010 (percent)*

Level where patients should have been treated	Level where patients were actually treated					
	Central general hospital	Central obstetrics hospital	Central pediatrics hospital	Provincial general hospital	Provincial specialty hospital	District hospital
Central level	39.1	6.5	5.8	2.7	0.9	0.4
Provincial level	35.4	43.3	35.5	43.3	42.4	7.3
District level	20.2	49.3	58.3	41.4	47.4	71.4
Commune health station	0.0	0.0	0.0	10.9	5.8	19.1
Other specialty hospital	5.3	0.9	0.4	1.7	3.5	1.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: HSPI 2010.

**FIGURE 6.4** Average length of stay in East Asian and Pacific acute care hospitals is higher than or comparable to OECD averages*Average length of stay (days) in acute care hospitals, selected economies*Source: OECD Health Data 2012 database, <http://dx.doi.org/10.1787/888932723266>.

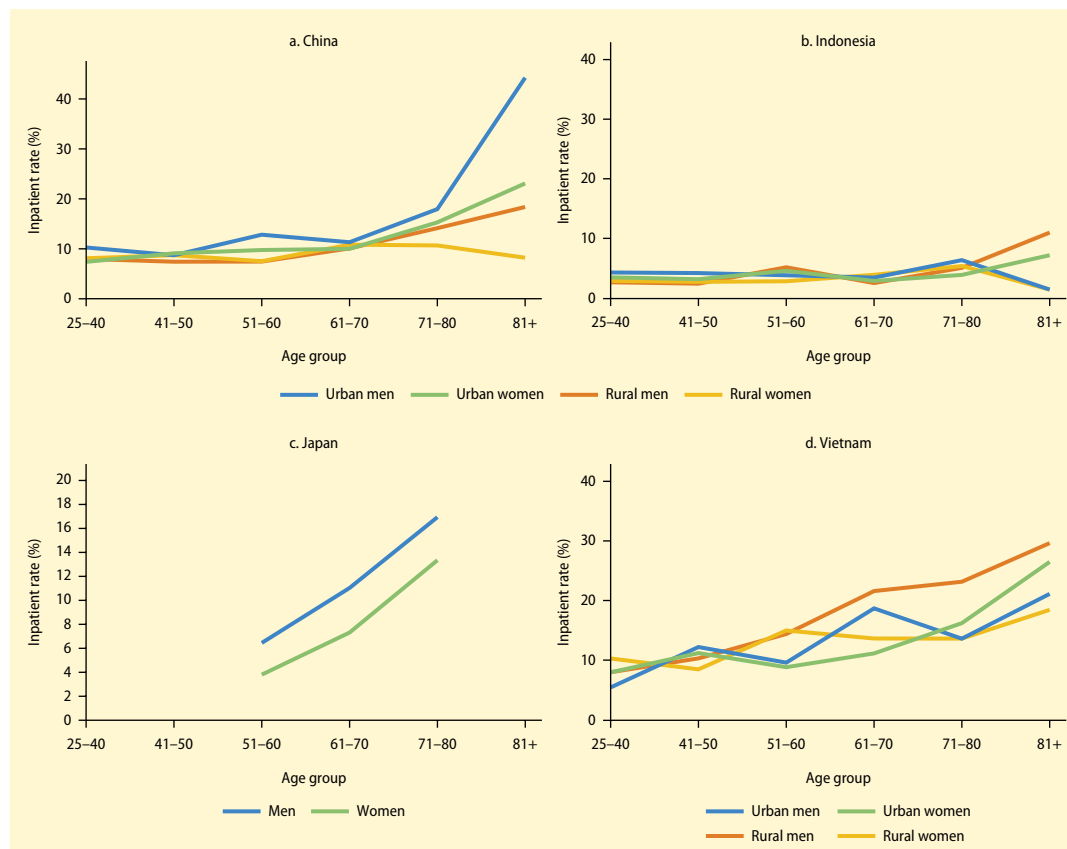
Note: OECD = Organisation for Economic Co-operation and Development. Data for the Republic of Korea refer to average length of stay for inpatient care (including long-term care beds in hospitals).

However, quality of care in primary care facilities is poor, particularly with regard to staff skills and competencies. Clinicians at the community level lack the skills to provide effective diagnosis and treatment because of inadequate training and limited access to continuing medical education (box 6.1). Staff turnover is high in primary care settings as a result of poor living conditions in rural areas, which further impedes quality of care. In a survey in Singapore, older people complained they saw a different doctor on each visit.

The hospital-centric nature of care provision combined with weak and poor-quality primary care has resulted in fragmented health systems throughout East Asia and Pacific. Few of the region's health systems have formalized links between hospitals and ambulatory providers, including structured referral systems, patient discharge and handover mechanisms, and patient outreach services (McCollum et al. 2014). In almost all cases, referral mechanisms exist on paper but not in practice. Policies requiring patients to pay much higher fees for self-referrals have had little effect (Somanathan et al. 2014).

### Weaknesses in people-provider interactions

Fragmented health care delivery systems merely exacerbate an overly acute and episodic pattern of health care use by the elderly. Poor older people with minor ailments in Cambodia, Indonesia, and Vietnam reported seeking care from a range of practitioners such as private health practitioners, local pharmacists, and traditional practitioners instead of government primary health care centers, which they found to be less convenient and unreliable. Notably, in most East Asian and Pacific countries, annual health check-ups and screenings are infrequent. Countries such as China (Strauss et al. 2012) and Thailand (Knodel, Prachuabmoh, and Chayovan 2013)

**FIGURE 6.5** Inpatient admission rates increase with mean age of household*Inpatient admission rates, by age and percent, selected countries*

Sources: CHARLS 2011; IFLS 2007; JSTAR 2011; VHLSS 2012.

have made efforts to encourage annual physical exams and outpatient visits by ensuring they are covered by insurance. In Thailand, over half of those ages 60 and above reported having an annual physical exam, with little variation by gender, age, or area of residence, a trend associated with high levels of outpatient care coverage provided by the Universal Coverage Scheme.<sup>1</sup> However, a study of primary health care in Cambodia, Indonesia, Singapore, and Vietnam found that annual health exams were rare and that the elderly cited cost as the major reason for not seeking them (Dodge 2008).

Fragmentation is also directly associated with discontinuity of care and duplication of services, particularly for those—such as the elderly—with chronic conditions. In most

East Asian and Pacific countries, the chronically ill tend to have multiple contacts with the delivery system, such as diagnostic services, specialists, emergency rooms, outpatient clinics, and pharmacies. Moreover, as discussed in chapter 1 of this report, the elderly tend to have multiple chronic conditions and comorbidities, and the lack of integration of care means that eventually, they seek care from multiple providers for multiple conditions. Without coordinated care approaches to help the elderly navigate the delivery system, follow the course of their diseases, and provide continuous management and follow-up, they often do not receive effective or timely care. This inadequacy results in acute complications, repeat visits, or duplicated care—often for the same illness episode—and higher costs

## BOX 6.1 Poor qualifications of staff to provide effective diagnosis and treatment

### China

- Doctors with higher levels of education and more qualifications were found to provide better-quality processes and more correct diagnoses. However, 80 percent of clinicians staffing village health posts and 40 percent of those at township health centers reportedly had only vocational high school education or less (Sylvia et al. 2014). Lack of qualified staff was also reported for urban commune health stations (community health centers).
- Only 18 percent of village doctors applied appropriate quality processes (based on national guidelines) for diagnosis and treatment of diarrhea and angina. A low 26 percent of diagnoses were correct, and in 64 percent of the cases, the doctors provided unnecessary or harmful prescriptions (Sylvia et al. 2014). Clinicians in township health centers fared only marginally better.

### Indonesia

- Based on survey vignettes (Rokx et al. 2010), only 56 percent of providers in public sector primary care facilities (*puskesmas* and *pustu*) scored correctly in diagnosis and treatment of adults with respiratory infection.
- Large regional variation exists: 59 percent of public providers scored correctly in Java-Bali compared to 48 percent in Sumatra.
- Poor diagnostic and treatment ability is directly linked to the lagging quality of preservice and in-service training in Indonesia and to the limited supply and poor quality of internships for medical students. The rapid growth of new medical

schools without proper credentialing is of particular concern. A significant positive correlation was observed between adult curative care scores and the receipt of training in diagnostic algorithm, antibiotics for respiratory disease, and so forth.

### Vietnam

- The best doctors are concentrated in the cities: only 5 percent of postgraduates and 45 percent of university graduates work at district and commune levels.
- Clinical training is hospital based, with little preparation provided for working at the primary care level. New medical graduates are not confident enough to work independently at commune health stations (CHSs) without close technical supervision and support. Newly graduated doctors are weak in 16 of 38 specific competencies, including critical competencies for primary care such as performing medical techniques and treatment and outpatient care (personal communication with World Bank staff in Vietnam).
- Staff at the district and commune levels lack adequate skills for the diagnosis and treatment of noncommunicable diseases and chronic diseases. In one rural district, staff in only seven of 18 CHSs had received training on hypertension prevention and management (Van Minh et al. 2014). An evaluation of professional competency at the commune level found that doctors and assistant doctors responded incorrectly to more than 50 percent of questions on cardiovascular and internal diseases (personal communication with World Bank staff in Vietnam).

for individuals, insurers, and government (World Bank 2014a).

An added challenge specific to the elderly is integrating emerging long-term care arrangements with the health delivery system, which can be institutional, community-based, or home-based care or care provided by family members or formal aged care workers. In most East Asian and Pacific countries, separate ministries are responsible for health and nonhealth services for the elderly, and their

efforts are unconnected. This issue is discussed further in chapter 7.

### Weaknesses in the organizational setting

#### *Distorted provider incentives leading to overprovision*

Providers in many East Asian and Pacific countries face strong incentives to overprovide services because fee-for-service (FFS)

payment methods are widely used without adequate measures of volume and price control. Admittedly, FFS provider payment systems are used in Japan; Korea; and Taiwan, China, and they have been successful in controlling cost growth because FFS is used in combination with global budgets and a unified fee schedule. The significant inflationary effects of FFS systems are well established in Canada; the Czech Republic; parts of the Russian Federation; and the United States (Langenbrunner and Somanathan 2011). In China and Vietnam, the FFS approach is used in a context where health facilities essentially operate as commercial enterprises, with an emphasis on self-financing of facilities (for example, sales or business income comprised over 60 percent of hospital revenue in both countries in 2010). The link between hospital business revenue and physician income has encouraged overservicing, unnecessary care, and inefficiency in service production (Somanathan et al. 2014; World Bank 2014a).

In addition, the lack of appropriate measures to prioritize among new and available health interventions has resulted in rapid growth in health technologies and pharmaceuticals. Distorted pricing for treatments has given health care providers strong incentives to generate demand for profitable high-technology services and drugs in place of less-profitable basic alternatives. In China and Vietnam, hospitals'—and therefore doctors'—revenues are enhanced by fees earned through prescriptions and medical tests and procedures and are supplemented by kickbacks from pharmaceutical companies (Somanathan et al. 2014; Yip and Hsiao 2008). In China, doctors' prescribing behavior has been found to vary with the insurance status of patients and the incentives offered by pharmaceutical companies (Currie, Lin, and Meng 2014; Lu 2014). More generally in the region, few measures are in place to prioritize and restrict the diffusion of new technologies and their incorporation into routine care. In many cases, the underlying health care system is practically or philosophically incompatible with mechanisms for evaluation

and prioritization at present (Leung, Tin, and Chan 2007).

The distortion of provider incentives and consequent overprovision of expensive services is driving up costs, particularly because strategic purchasing capacity is limited in most East Asian and Pacific economies. Strategic purchasing capacity refers to the ability of the purchaser (insurer, ministry of health, and so on) to incentivize providers to improve quality processes and results while contributing to cost containment (that is, reducing readmissions and unnecessary admissions, long stays, repeat procedures, and adverse events). In most systems financed by general revenues (Cambodia; Hong Kong SAR, China; Malaysia; and most Pacific Island states), the purchaser and provider are essentially the same (the ministry of health), which leaves little room for the development of strategic purchasing capacity. Even in insurance-based systems (China, Indonesia, Mongolia, the Philippines, and Vietnam), social insurance agencies have yet to establish the informational, managerial, and financial accounting capacities to exercise robust, arm's-length service purchasing and monitoring of providers, whether public or private. In many cases, the fragmentation of governance and administration to subnational levels has further weakened the purchasing power of the insurance agency.

### *Insufficient focus on chronic disease management and population health*

Primary health care (PHC) facilities tend to focus on treatment rather than health promotion and education. Health promotion and education interventions are crucial for the management of NCDs, particularly among the elderly. In Cambodia, Indonesia, Singapore, and Vietnam, elderly survey respondents reported that PHC providers do not spend time discussing behavioral changes such as healthy diets and exercise (Dodge 2008).

Moreover, the readiness of PHC facilities to manage chronic NCD conditions is limited. Box 6.2 describes the limited readiness of public sector primary care facilities (*puskesmas*) in Indonesia to diagnose and treat three key

## BOX 6.2 Limited supply-side readiness to manage and treat noncommunicable diseases at the primary health care level in Indonesia

Indonesia faces several challenges in effectively implementing its universal coverage policy, especially in addressing noncommunicable diseases that are chronic and require careful disease management over time. The results of a supply-side readiness study that drew upon a national facility-level survey are summarized below.

### Diabetes mellitus

- Percentage of public sector primary care facilities (*puskesmas*) that could conduct a basic blood glucose test for basic monitoring and diagnosis of diabetes mellitus: 70 percent in urban areas; 51 percent in rural areas; less than 20 percent in some provinces such as Gorontalo, Papua, Maluku, North Sulawesi, Southeast Sulawesi, and West Papua
- Percentage of *puskesmas* with basic drugs for treatment of diabetes mellitus: 90 percent with glibenclamide in stock; 48 percent with metformin in stock

### Hypertension

- Percentage of prevalence: estimated to be 31.7 percent in 2007 (over 18 years of age)
- Percentage of *puskesmas* with functioning blood pressure apparatus for diagnosis: over 95 percent nationally
- Percentage of *puskesmas* with basic drugs to treat hypertension: availability of captopril reported in 86 percent (urban) and 83 percent (rural) of areas; 50 to 60 percent in some provinces such as West Sulawesi and Papua

### Hypercholesterolemia

- Percentage of *puskesmas* able to conduct cholesterol screening tests: 44 percent (urban) and 31 percent (rural)
- Percentage of *puskesmas* able to administer secondary prevention: simvastatin reported in 50 percent (urban) and 27 percent (rural) of areas

Source: World Bank 2014b.

NCD-related conditions (diabetes, hypertension, and hypercholesterolemia). In Vietnam, only 15 percent of districts and 2 percent of communes are implementing hypertension management under the national targeted program, and 97 percent of commune health systems lack the capacity to carry out basic tests (Van Minh et al. 2014).<sup>2</sup> In the Philippines, patient access to diabetes care and treatment was found to be impeded by the poor availability of adequate equipment and insulin and other medicines at the PHC level (Higuchi 2010).

### *Failure of low-value health systems to provide equitable and affordable access to services*

In East Asia and Pacific, higher levels of coverage have not translated into affordable coverage for the population. The out-of-pocket (OOP) share of total expenditures and the incidence of catastrophic OOP payments remain high in most countries. In China, the

Philippines, and Vietnam, 10 to 20 percent of households incur OOP payments that are catastrophic (exceeding 25 percent of household expenditures). The likelihood of catastrophic OOP payments is greater for NCDs and chronic conditions.

In the region, OOP payments for health care are consistently higher for the elderly than for the remaining population. Household survey data also show that the share of OOP payments in total household consumption is consistently higher for elderly households (average ages 60 and above) relative to non-elderly households (table 6.2). In addition, evidence exists that OOP payments are potentially catastrophic for elderly households. In China, Indonesia, and Vietnam, OOP payments exceed 25 percent of total household expenditures for 18 percent, 6 percent, and 3 percent of elderly households, respectively, and this rises to 34 percent, 17 percent, and 30 percent, respectively, when only nonfood expenditures are considered (table 6.3).

**TABLE 6.2 Significant shares of elderly are experiencing catastrophic out-of-pocket payments for health care relative to total household spending***Percentage of households by age groupings with health spending of 25 percent or more of total household expenditure**a. China*

	Household mean age			Total (%)
	25–49 (%)	50–69 (%)	70 and above (%)	
<b>Sector</b>				
Rural	9.36	12.48	18.57	11.23
Urban	8.21	10.13	13.55	9.38
Total	8.78	11.35	15.82	10.30
<b>Gender</b>				
Male	8.03	10.10	14.64	9.34
Female	9.44	12.53	16.78	11.16
Total	8.78	11.35	15.82	10.30
<b>Sector and gender</b>				
Rural men	8.75	11.87	17.91	10.61
Rural women	9.91	13.08	19.13	11.80
Urban men	7.33	8.14	11.83	8.06
Urban women	8.99	11.96	14.90	10.54
Total	8.78	11.35	15.82	10.30

*b. Indonesia*

	Household mean age			Total (%)
	25–49 (%)	50–69 (%)	70 and above (%)	
<b>Sector</b>				
Rural	1.60	2.86	3.56	1.85
Urban	1.82	3.58	4.16	2.06
Total	1.70	3.15	3.76	1.95
<b>Gender</b>				
Men	1.60	3.15	3.98	1.84
Women	1.80	3.15	3.65	2.04
Total	1.70	3.15	3.76	1.95
<b>Sector and gender</b>				
Rural men	1.57	2.79	3.64	1.79
Rural women	1.63	2.92	3.53	1.91
Urban men	1.63	3.67	4.80	1.90
Urban women	1.98	3.51	3.90	2.20
Total	1.70	3.15	3.76	1.95

*c. Japan*

Gender	Respondent's age		Total (%)
	50–69 (%)	70 and above (%)	
Men	0.25	0.12	0.20
Women	0.25	0.48	0.33
Total	0.25	0.31	0.27

*d. Thailand*

Sector	Household mean age			Total (%)
	25–49 (%)	50–69 (%)	70 and above (%)	
Rural	1.48	2.52	3.68	1.88
Urban	1.55	2.92	4.61	2.04
Total	1.50	2.65	3.95	1.94

*table continues on next page*

**TABLE 6.2** Significant shares of elderly are experiencing catastrophic out-of-pocket payments for health care relative to total household spending (continued)

Percentage of households by age groupings with health spending of 25 percent or more of total household expenditure  
e. Vietnam

	Household mean age			Total (%)
	25–49 (%)	50–69 (%)	70 and above (%)	
<b>Sector</b>				
Rural	1.84	4.16	5.88	2.37
Urban	1.59	3.76	6.78	2.00
Total	1.75	4.06	6.09	2.25
<b>Gender</b>				
Men	1.64	4.10	6.22	2.10
Women	1.90	4.02	5.97	2.43
Total	1.75	4.06	6.09	2.25
<b>Sector and gender</b>				
Rural men	1.68	4.28	5.64	2.16
Rural women	2.05	4.04	6.08	2.63
Urban men	1.54	3.58	8.01	1.97
Urban women	1.64	3.94	5.60	2.03
Total	1.75	4.06	6.09	2.25

Sources: CHARLS 2011; IFLS 2007; JSTAR 2011; ThaiSES 2011; VHLSS 2012.

**TABLE 6.3** Significant shares of elderly are experiencing catastrophic out-of-pocket payments for health care relative to total nonfood household spending

Percentage of households by age groupings with health spending of 25 percent or more of total nonfood expenditure  
a. China

Sector	Household mean age			Total (%)
	50–69 (%)	70–79 (%)	80 and above (%)	
Rural	33.41	33.16	40.83	34.00
Urban	29.62	32.78	25.70	30.57
Total	31.69	32.96	33.57	32.33

b. Indonesia

Sector	Household mean age			Total (%)
	50–69 (%)	70–79 (%)	80 and above (%)	
Rural	15.86	18.50	17.94	16.74
Urban	12.15	14.79	4.57	12.29
Total	14.44	17.24	12.83	15.09

c. Vietnam

Sector	Household mean age			Total (%)
	50–69 (%)	70–79 (%)	80 and above (%)	
Rural	27.99	29.98	35.20	29.88
Urban	26.70	25.57	53.01	29.91
Total	27.72	28.98	38.60	29.88

Sources: CHARLS 2001; IFLS 2007; VHLSS 2012.



Health care access for the elderly is also characterized by large inequalities between rich and poor elderly. Household surveys from China, Indonesia, Japan, and Vietnam show a two- to threefold difference between the health care utilization rates of the richest 20 percent of the population compared to the poorest 20 percent, with the exception of Japan. In Thailand, civil servants who have more generous coverage use outpatient care two to three times as often and inpatient care four to five times as often as the remaining population. Earlier analysis has shown that higher household per capita expenditure is positively associated with use of inpatient and outpatient care in China (Strauss et al. 2012).

Thus, effective health coverage—people who need health care receive it in a timely and affordable manner and at an acceptable level of quality—remains elusive for the elderly as much as or more than for the overall population. The only exceptions are the high-income East Asian and Pacific countries. However, affordability of care is not the only issue; a growing body of evidence indicates that higher levels of insurance coverage do not always lead to use of appropriate, good-quality services (Currie, Lin, and Meng 2014; Somanathan et al. 2014).

### **Universal health coverage in the context of population aging and NCDs**

Coverage—defined in terms of enrollment in universal coverage programs and benefit levels—has increased quite significantly, accompanied by an expansion in the overall supply of health services. The drive for universal health coverage, backed by large increases in public spending on health, is the single most unifying feature of health policy in East Asia and Pacific today. Rapid increases in enrollment coverage occurred in five of the largest countries in the region since the mid-1990s. Benefit packages have also been expanded to include chronic conditions and outpatient care.

Despite increased coverage levels, OOP payments remain high because of rising

health system delivery costs and weak cost-containment measures. Despite increases in central government subsidies of 1 to 2 percent of gross domestic product (GDP) during the past decade or so, payers (insurance organizations and local governments) and providers are increasingly under financial stress because benefits packages are overly generous and not fully financed in many cases. Meanwhile, as discussed earlier, the combination of distorted provider incentives, lack of strategic purchasing capacity, and weaknesses in the design of the service delivery system make cost containment a major challenge. As costs rise, providers increasingly resort to cost recovery from patients, such as the common practice of extra billing for services in the Philippines and Vietnam.

With or without regard to aging, current trends in service delivery patterns and costs will not only increase the OOP burden on households, but also undermine the sustainability of public financing for health. Even without population aging, political commitments toward universal health coverage and the consequent expansion in health care coverage are expected to lead to quite substantial increases in the demand for health care. Such increases are likely to put additional pressure on health systems that are already supply constrained. Moreover, NCDs pose a new set of challenges to health systems because of the different models of care delivery required to manage chronic diseases.

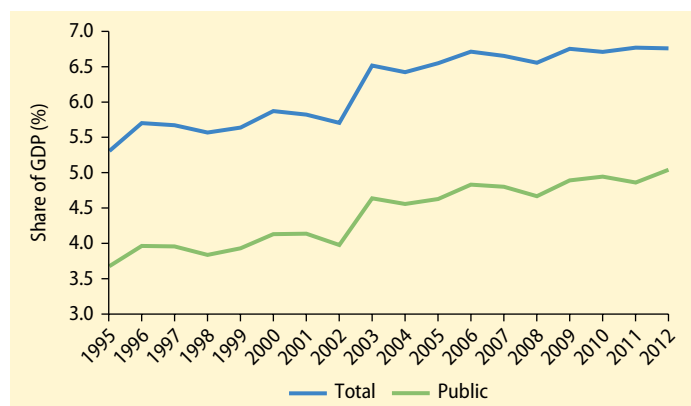
Adding an aging population to this toxic mix of cost drivers is widely expected to lead to rapid cost escalation. Exactly how large will the aging effect be relative to other drivers of costs? The next section examines this in more detail.

### **Population aging and health expenditures in East Asia and Pacific**

Overall health spending is relatively high in East Asia and Pacific and has risen quite sharply in recent years, fueling concerns about fiscal sustainability, particularly in the context of aging. This section examines whether aging itself or other cost pressures

**FIGURE 6.6** Health share of GDP has been rising in East Asia and Pacific with income growth

*Total and public expenditure on health as a percentage of GDP, 1995–2012*



Source: WHO health data.

drive health expenditure growth in the region. Health spending trends and demographic and non-demographic drivers of health spending are examined in light of OECD evidence. The available empirical evidence on decomposition of health expenditures—retrospective and forward looking—for OECD countries and a selection of East Asian and Pacific countries is also presented.

As a share of GDP, total health expenditures in East Asia and Pacific are more or less compared to other regions, but have been ramped up significantly in recent decades due to a combination of policy shifts, social pressure, and to some extent demographic change (figure 6.6). The share of public health spending tends to be higher than average in East Asia and Pacific, although this is driven in part by Pacific Island countries, which have exceptionally high shares (more than 70 percent) of public spending.

### The “aging” effect on health expenditures

Health expenditures per capita, measured nationally or globally, rise at older ages. The trend is supported by the data (Fuchs 1998; Hagist and Kotlikoff 2005; Meerding et al. 1998; Mendelsohn and Schwartz 1993). Age-specific profiles of expenditures typically

exhibit a J-shape: per capita spending is somewhat high at very young ages, declines and remains stable for most of the prime-age period, and increases again from about age 55 for men and age 60 for women. Figure 6.7 illustrates this age-expenditure profile in the case of Japan. Given this trend, the frequent assumption is that aging—by increasing the share of the population in older age groups—will generate substantial increases in health care spending.

However, numerous studies have shown that the effects of aging on health expenditure are much more complex than apparent from looking at per capita health care costs by age profile in a given year. The evidence shows that the age profile of health spending changes for two main demographic reasons: (a) concentration of the bulk of an individual’s lifetime health care costs at the end of life (so-called “death-related” costs) and (b) the possible improvement in health status following the increase in life expectancy. Depending on the death-related costs component and the possible changes in health status, an observation at any given point in time that the elderly consume more health care services than the young does not suggest that the process of aging alone will inevitably lead to increases in health care spending (Raitano 2006). Each of the two factors underlying the relationship between aging and health expenditure is examined below.

### *Proximity to death*

Recent empirical studies have found that proximity to death, rather than age, is an important driver of costs, at least for groups ages 65 and above (Raitano 2006). Typically, illness and disability worsen sharply in the few weeks or months before death, leading to rapid upward-spiraling of the individual’s health expenditures because of medical interventions, hospital stays, hospice care, and so on. Evidence from the OECD shows quite consistently that per capita health expenditures spiral in the last few years of life, particularly in the final year (Lubitz and Riley 1993; Spillman and Lubitz 2000).

With the majority of health expenditures concentrated near death, one cannot assume

that the age profile of health expenditures will remain constant when life expectancy increases. Decreases in age-specific mortality rates may lead to decreases in age-specific costs, because declining mortality rates reduce the proportion of high-cost users (that is, those close to death). In figure 6.7, the rightward shift of the J-curve for Japan between 2001 and 2012 shows that as longevity increased in Japan, the older age groups still cost more than younger age groups, but at progressively older ages.

Therefore, examining estimations of how large the spike in deaths will be in East Asian and Pacific economies during the next 20 to 30 years is useful. For the very young green countries in the region (Cambodia, the Lao People's Democratic Republic, Myanmar, Papua New Guinea, the Philippines, and Timor-Leste), the increase in deaths will be almost negligible (figure 6.8). The moderately old orange countries (China, Indonesia, Malaysia, Mongolia, Thailand, and Vietnam) will have to absorb about 0.28 percent more of the population dying annually by 2040. The very old red economies (Hong Kong SAR, China; Japan; Korea; and Singapore) face the biggest challenge, with 0.36 percent more of the population dying annually by 2040.

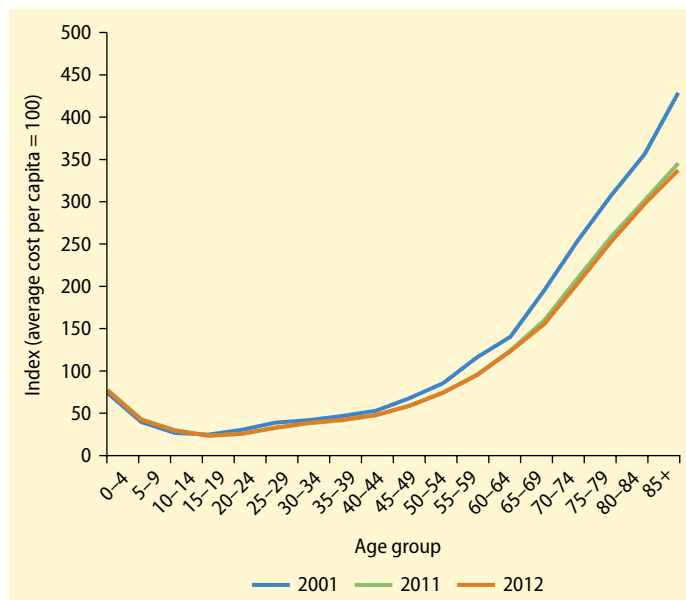
### Health status and life expectancy

If proximity to death is a key driver of costs, then so is the progression of illness and disability leading up to death. If the bulk of health care costs is incurred within a few months or years of severe illness before death and if this timespan shrinks and shifts over time to ever-higher ages (morbidity compression), then population aging would not be the main factor driving up costs. Alternatively, if increased longevity without improvement in health status (morbidity expansion) leads to increased demand for services over a longer period of time, aging would lead to increased total lifetime health care expenditures and overall health care spending.

Data on years lived with disability and risk factors produced by the Global Burden of Disease project indicate that in East Asia and Pacific, the middle-age cohort of today is less healthy compared with the middle-age

**FIGURE 6.7** Age-specific expenditure profile exhibits J-shape for Japan

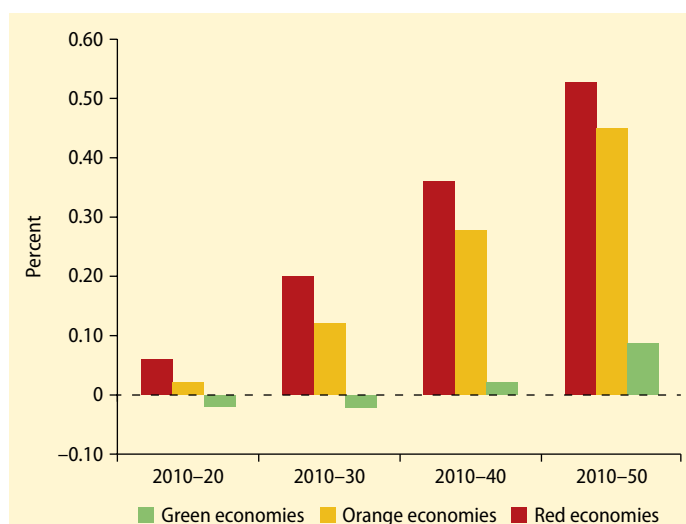
Health cost per capita by age relative to average index = 100, 2001, 2011, and 2012



Source: MHLW 2011.

**FIGURE 6.8** Spikes in death rates vary with the speed of aging across East Asia and Pacific

Projected percentage of deaths in population by country grouping, various years



Source: World Bank calculations based on United Nations mortality data.

Note: Red = Hong Kong SAR, China; Japan; the Republic of Korea; and Singapore. Orange = China, Indonesia, Malaysia, Mongolia, Thailand, and Vietnam. Green = Cambodia, the Lao People's Democratic Republic, Myanmar, Papua New Guinea, the Philippines, and Timor-Leste.

cohorts of 10 to 20 years ago (figure 6.9). The middle-age cohort of today has higher rates of hypertension and diabetes and higher rates of smoking and exposure to other risk factors. Therefore, one can reasonably expect morbidity to expand as the current middle-age cohorts reach older ages. Putting in place health policies and strategies that take a whole-of-life approach to healthy aging will help curb these trends in the future.

### The main cost drivers: Non-demographic effects on health expenditures

The idea that aging has a significant effect on health expenditures is often referred to as a “red herring” because it distracts from more important underlying cost drivers (Zweifel, Felder, and Meiers 1999). From a historical perspective, demography has

never been a major driver of health care spending (Oxley and MacFarlane 1994). Growth in health spending has been driven by other demand effects (per capita income growth and extension of coverage by national health systems), but primarily by supply factors (technological progress, inflation, and supply-induced demand effects in a sector where information asymmetries are pervasive). These non-demographic drivers are considered below.

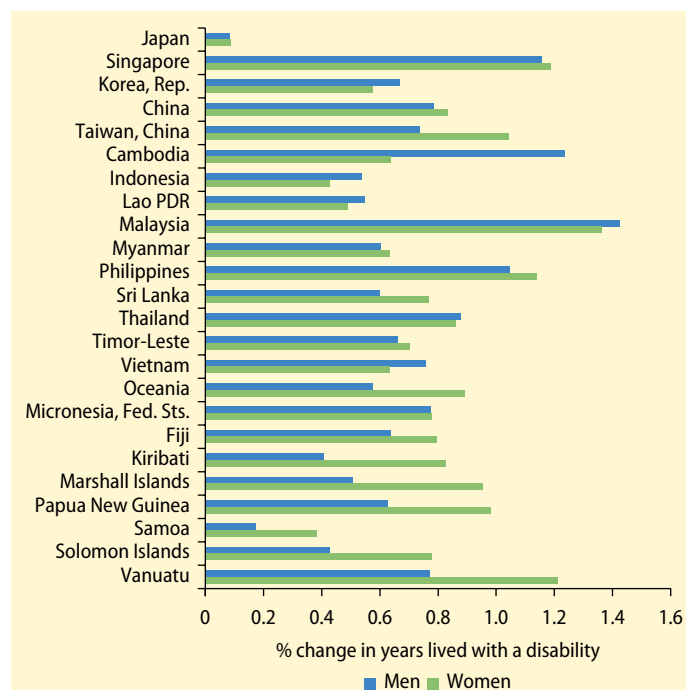
As national income or wealth increases, both expectations and health spending rise, regardless of changes in needs (Getzen 2000). East Asian and Pacific governments’ prioritization of universal health coverage goals and willingness to accompany those policy commitments with large increases in public spending in recent years, especially in China, Indonesia, the Philippines, and Vietnam, are evidence of this rise. In these countries, rapid economic growth during the 1990s and early 2000s was associated with rising expectations and demand for greater access to health care and with governments’ acknowledgement of the need to address those demands by increasing public spending on health, as evidenced by elasticities of spending of greater than or equal to one in almost all countries (figure 6.10).

All other non-demographic drivers aside from income are referred to as *excess cost growth*—essentially, the excess of growth in per capita health expenditures over the growth in per capita GDP after controlling for the effect of demographic change. This approach captures the effects of two cost drivers: technological change and policy choices regarding key levers of health financing. The available evidence on the effect of these two drivers and the significance for East Asia and Pacific are discussed below. A third element of excess cost growth worth noting is Baumol’s cost disease: low-productivity increases in medical care relative to other less labor-intensive sectors shift the relative prices of medical care upward (Baumol 1996, 2012).

Technological change has accounted for the bulk of medical care cost increases over

**FIGURE 6.9** Years lived with disability are increasing in East Asia and Pacific as life expectancy increases

*Percentage change in years lived with disability for the cohort, by gender, ages 55 to 59, 1990–2010*



Source: IHME 2013.

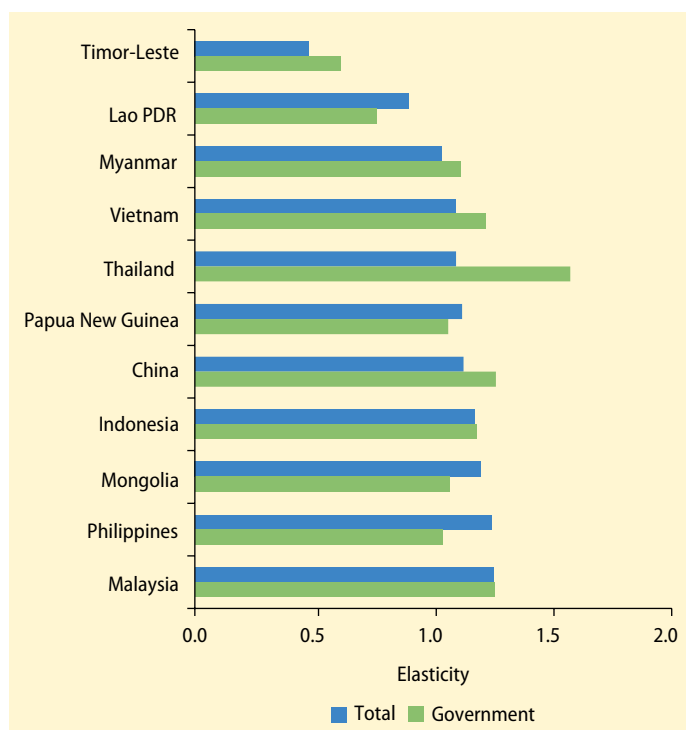
time (Newhouse 1992; Smith, Newhouse, and Freeland 2009). Recent estimates suggest that medical technology explains 27 to 48 percent of growth in health care spending in OECD countries since 1960 (Smith, Newhouse, and Freeland 2009). Although technological change often contributes to efficiency improvements, in recent years, new technologies have been dominated by costly product innovations to alleviate disease rather than to improve efficiency or strengthen preventive care. Expensive end-stage cancer drugs that do little to cure the disease but may improve outcomes temporarily are one example. This trend has also contributed to the growth in death-related costs (Baumol 2012; Zweifel 2003). In countries where cost control mechanisms are weak and efforts to rein in technology growth are limited, technological change can lead to rapid cost escalation in association with aging. The contribution of the costly product innovations to per capita expenditures at different ages, rather than aging itself, is the driver in health spending.

Rising incomes and expectations will likely add further pressure to technology growth. As noted earlier in the chapter, the absence of appropriate measures to prioritize the diffusion of new technologies combined with distorted FFS-driven incentives have already resulted in rapid growth in health technology spending in East Asia and Pacific. In China, for instance, the medical device market grew from US\$8 billion in 2006 to US\$20 billion in 2011—a compound annual growth rate of 20.1 percent, exceeding even the pace of total health expenditures (US\$156 billion to US\$357 billion, compound annual growth rate of 18.0 percent). Box 6.3 discusses the role of technological change and interactions with aging in the escalation of health care costs.

In East Asia and Pacific, efforts to rein in the growth of technologies are critical for controlling health expenditure growth, particularly in the context of an aging population. Health policy needs to focus on ensuring that health technologies are adopted on the basis of evidence and need and are diffused appropriately and that the costs of adoption are managed carefully. This approach will require

**FIGURE 6.10 Total and public health spending has increased more rapidly than GDP in much of East Asia and Pacific in the 1990s and 2000s**

*Elasticity of total and public health spending to GDP, selected East Asian and Pacific countries, 1995–2012*



Source: World Bank 2015.

not only the introduction of new mechanisms for evaluation and prioritization (discussed in the next section), but also the political will to withstand demand pressures for new technologies. In many countries, the elderly are more vocal politically than others and may drive up the adoption of new technologies.

As shown by Hagist and Kotlikoff (2005), in addition to costly product innovations, the contribution of benefit levels at different ages can drive up spending. Because health care benefit levels (health care expenditures per beneficiary at a given age) are much higher for the elderly than for the young, benefit levels increase as the proportion of older age groups in the population increases. However, considerable heterogeneity exists across countries in health spending at older ages. As figure 6.11 shows, in Austria, Germany,

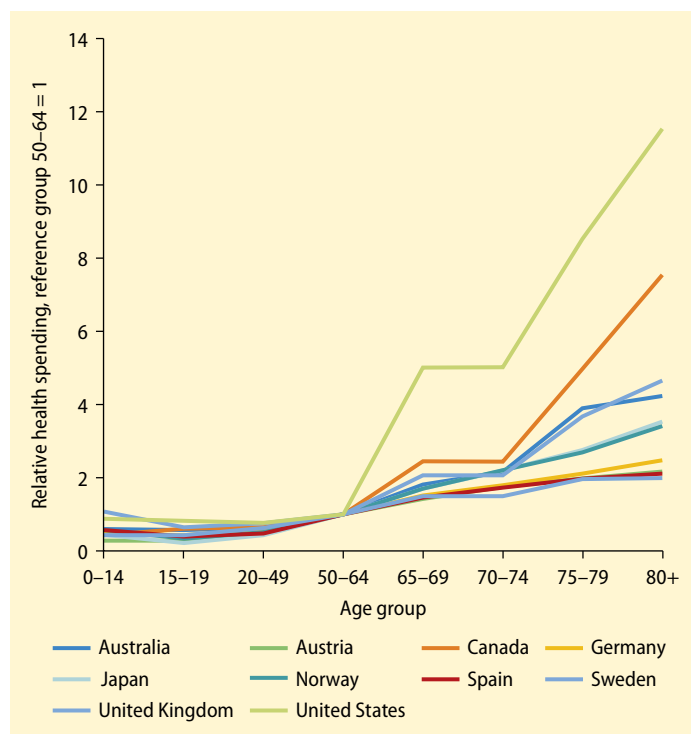
### BOX 6.3 The role of technological change and interactions with aging in health care cost escalation

Technological change—the adoption and utilization of new pharmaceuticals and medical technologies—is not necessarily problematic. For instance, Cutler and McClellan (2001) found that the use of new technology helped increase the average coronary patient's life expectancy by one year (valued at US\$70,000 per case) while treatment costs increased US\$10,000 per case (4.2 percent per year), for a net benefit of US\$60,000 per case. Whether a particular technological development increases or decreases costs depends on its effect on unit cost, its level of use, and the likelihood that the treatment complements or replaces existing methods.

The combination of population aging and advances in medical technology provides the rationale to spend more, with more medical technology being oriented toward the elderly (Dormont, Grignon, and Huber 2006; Jones 2002). A Dutch study that looked at utilization trends and the state of medical technology (medical patents) found that large advances in medical technology were significantly associated with higher growth in the probability of hospitalization, particularly for the older population (Wong et al. 2011).

**FIGURE 6.11** Age-specific expenditure profiles vary for OECD countries

*Health spending by age relative to reference group 50–64 = 1, selected countries, latest available year, early 2000s*



Source: Hagist and Kotlikoff 2005.

Note: OECD = Organisation for Economic Co-operation and Development.

Spain, and Sweden, per capita expenditures for those ages 75 to 79 and 80 and above are only twice the level of per capita expenditures of the reference age group—ages 50 to 64. In contrast, the oldest-old (ages 80 and above) in the United States receive benefits that average 8 to 12 times those of the reference group, whereas Japan falls in the middle.

The policy choices of health systems about how the benefits package is defined, how providers are paid, how services are purchased, and how the delivery system itself is structured are all determinants of the pace of expenditure growth. As discussed in the previous section, the current set of policy choices in most East Asian and Pacific countries is inimical to cost control. Of course, there are some exceptions such as Japan. Given that Japan aged much more rapidly than the United States during 1970–2002 (Hagist and Kotlikoff 2005), per capita health care expenditures should have grown more rapidly in Japan. Instead, the reverse was true because of the much higher rate of benefit growth recorded in the United States, where cost control is weaker than in Japan.

Policy choices are critical with respect to the control of NCDs, given that they will account for nearly two-thirds of all deaths.



Although three-quarters of NCD deaths occur over age 60, the burden of NCDs is not borne by the elderly alone. With the onset of NCDs increasingly occurring at younger ages, much of the effect of NCD-related morbidity will be felt by the working-age population. In China, where over half of the incidence of NCDs falls on the working-age population, the projected cumulative cost associated with each of the five domains (cardiovascular disease, cancer, chronic respiratory disease, diabetes, and mental health) is US\$27.84 trillion (Bloom et al. 2013). A range of policy options are available to policy makers for the prevention and control of NCDs, some of which are more likely to drive up costs than others as discussed in the next section.

### **Decomposition of health expenditures**

The main question for most policy makers in the region is whether health expenditures will reach unsustainable levels in the future, and the potential contribution of aging to spending growth. Health expenditure projections or actuarial cost projections are fairly data intensive. Economy-specific projections for East Asia and Pacific are available only for Hong Kong SAR, China, and for Malaysia, although health expenditure projections produced by the OECD and the International Monetary Fund include several countries from the region. Projections carried out by the European Commission for the EU-27 countries<sup>3</sup> are also worth examining. Notably, all of these projections estimated the effect of demographic and non-demographic drivers.

Two key points emerge from recent expenditure analysis, primarily from OECD countries: (a) aging itself typically accounts for one-third or less of the increase in health spending, even in the older countries (a finding that is similar to estimates for Malaysia), and (b) excess cost growth, specifically that driven by technological change and policy choices, emerges as the most critical factor in health expenditure growth. Although the

overall health expenditure projections cover a broad range and are probably not directly comparable because of methodological differences, health expenditure projections for Malaysia show the extent to which efficiency savings can actually help control health expenditure growth (Rannan-Eliya et al. 2013).

Nonetheless, in low- and middle-income countries in East Asia and Pacific, aging may account for a greater share of total health spending than that found for OECD countries to date. In these East Asian and Pacific countries, the pace of urbanization and health care reforms to expand coverage will accelerate in the next two decades or so. Both of these transitions will increase the demand for health care generally, but expenditure by the elderly is likely to increase more than by other age groups. For instance, a recent study from China found that although health care spending of rural residents is lower than that of urban residents in all age groups, the age-expenditure profile is much steeper in urban areas than in rural areas (Feng, Lou, and Yu 2015). This finding suggests that the health expenditures of the elderly increase more during the process of rural-urban integration. The study also found a cohort effect that causes the elderly to increase health expenditures by more than the younger group even if they experience common social or economic changes (for example, health care reform). As health coverage expands with universal health coverage-motivated policies and reforms and as health insurance expands into rural areas, pent-up demand for health care is likely. Significant health spending will be incurred as the elderly who did not previously use health care now begin gaining access to services.

The expected increase in disease burden attributable to NCDs, combined with inefficiencies in the financing and delivery of health services, mean that escalation of health care costs in East Asia and Pacific may prove unsustainable even without the effects of aging, although aging will no doubt be a contributing factor. As discussed earlier, the

distribution of the burden of NCDs across the region reflects rapidly increasing exposure to lifestyle and disease risk factors, including smoking and conditions such as hypertension and diabetes that predispose younger adults to NCDs later in life. Meanwhile, most of the region's health systems are ill equipped to screen, monitor, and treat NCDs and other aging-related conditions such as frailty and dementia efficiently and effectively.

### Health policies and strategies for an aging population

Without immediate and effective reforms to provider payments and purchasing and without improved efficiency in service delivery, health expenditure growth in East Asia and Pacific may well undermine fiscal sustainability. The experience of OECD countries indicates that there are alternative pathways to growing old that involve reducing the severity of population disease from a moderately severe level without excessive burden on government and household budgets. This section draws from experiences of OECD countries in reducing mortality and morbidity resulting from NCDs and aging and applies them to the East Asian and Pacific context to present a range of health policies and strategies for consideration. These crucial policy reforms, which are discussed in turn below, are as follows:

- Reducing exposure to NCD-related risk factors through stronger health promotion and public health
- Managing risk factors more effectively through primary and secondary prevention
- Improving self-management and medication adherence
- Transforming health care delivery into a primary care-centered and integrated system of care delivery
- Managing acute care episodes more effectively
- Preparing for functional and cognitive decline among the elderly
- Getting better value for money through strengthened purchasing and prioritization of health interventions

- Preparing communities and institutions outside the health system for the emerging needs of an increasingly older population

### Reducing exposure to risks

Reducing exposure to risk early in life is part of taking a life-course approach to reducing illness and disability among the elderly. Table 6.4 summarizes key cost-effective strategies for reducing population-level exposure to NCD-related risks.

Although effective strategies to control smoking exist, smoking remains the leading cause of preventable deaths globally (WHO 2013). Robust evidence shows that tobacco control as outlined in the Framework Convention on Tobacco Control is the most cost-effective set of strategies (table 6.4) for controlling NCDs and that improvements can happen quickly. This is confirmed by the experience of the United States and Western Europe (Cutler, Deaton, and Lleras-Muney 2006).

Increasing taxes on tobacco control products is the most cost-effective of the Framework Convention on Tobacco Control interventions, but low- and middle-income countries in East Asia and Pacific have tended to lag on this intervention (table 6.5). Evidence from Australia, Canada, and the United States indicates that higher taxes induce some smokers to quit, reduce consumption by those who continue to smoke, prevent others from starting, and reduce the number of ex-smokers who resume (Sunley 2009; WHO 2014a). However, low- and middle-income East Asian and Pacific countries have lagged in implementing higher taxes, partly because of pressure from domestic tobacco producers who tend to be important economically (for example, China and the Philippines). In 2012, the Philippines passed landmark tax legislation that raised excise taxes on cigarettes, indexed the rates to inflation (starting in 2017), allocated a portion of the revenue to compensate tobacco farmers, and earmarked the remainder to finance universal coverage programs. The experience of the Philippines has spurred other countries in the region such



**TABLE 6.4** Effective strategies to reduce exposure to key NCD-related risks in East Asia and Pacific

Areas needing intervention	Recommended strategy
Smoking	Control of tobacco use as outlined in the World Health Organization Framework Convention on Tobacco Control: <ul style="list-style-type: none"> <li>• Increased taxes on tobacco products</li> <li>• Enforcement of smoke-free workplaces and packaging and labeling of tobacco products with comprehensive health warnings supported by public education</li> <li>• Comprehensive banning of tobacco advertising, promotion, and sponsorship</li> </ul>
Malnutrition	Promotion of physical activity and dietary quality and efforts to reduce obesity: <ul style="list-style-type: none"> <li>• Introduction of taxes for unhealthy food</li> <li>• Provision of subsidies for healthy food</li> <li>• Promotion of labeling</li> <li>• Administration of marketing restrictions</li> <li>• Community-based physical activity at schools, workplaces, and so on</li> </ul> Reduction of populationwide salt consumption: <ul style="list-style-type: none"> <li>• Voluntary reduction of salt levels in processed foods and food additives</li> <li>• Sustained public education to encourage change in food choices</li> </ul> Reduction of undernutrition and low birthweight: <ul style="list-style-type: none"> <li>• Targeted interventions to reduce stunting and wasting in poor populations</li> <li>• Multisectoral interventions such as food fortifications</li> </ul>
Alcohol use	Reduction of populationwide harmful alcohol consumption: <ul style="list-style-type: none"> <li>• Increased taxes on alcoholic beverages</li> <li>• Limited access to retail alcohol</li> <li>• Comprehensive banning of alcohol advertising, promotion, and sponsorship</li> </ul>
Vaccinations	Universal hepatitis B vaccination for countries at high risk for hepatitis B and liver cancer

Source: Adapted from Beaglehole et al. 2011.

Note: NCD = Noncommunicable disease.

**TABLE 6.5** Tobacco prices and taxes in East Asia and Pacific are not high enough

Economy	Price at official exchange rate (US\$)	Tax as a percentage of price	
		Specific excise tax (%)	Total tax (%) <sup>a</sup>
<i>East Asian and Pacific economies</i>			
Tuvalu	6.32	0.00	14.82
Cambodia	0.42	0.00	17.13
Marshall Islands	3.50	0.00	28.57
Philippines <sup>b</sup>	0.36	18.13	28.85
Solomon Islands	3.26	20.00	30.00
Timor-Leste	1.25	30.40	34.60
Nepal	0.51	23.69	35.19
Papua New Guinea	7.23	28.26	37.35
China	0.79	1.20	40.76
Fiji	4.02	27.79	40.84
Vietnam	0.72	0.00	41.59
Kiribati	6.32	0.00	41.67
Lao PDR	0.75	8.33	43.05
Mongolia <sup>b</sup>	0.59	40.27	49.36
Myanmar <sup>b</sup>	0.92	0.00	50.00
Indonesia <sup>b</sup>	1.76	42.60	51.00
Cook Islands	9.68	46.57	53.51
Palau	3.50	0.00	57.14
Malaysia <sup>b</sup>	3.18	44.00	57.30

table continues on next page

**TABLE 6.5** Tobacco prices and taxes in East Asia and Pacific are not high enough (*continued*)

Economy	Price at official exchange rate (US\$)	Tax as a percentage of price	
		Specific excise tax (%)	Total tax (%) <sup>a</sup>
Vanuatu <sup>b</sup>	7.58	45.71	58.49
Samoa <sup>b</sup>	3.76	46.74	59.79
Tonga	4.60	50.00	63.04
Australia <sup>b</sup>	14.35	51.19	60.29
Korea, Rep.	2.21	52.90	61.99
Japan <sup>b</sup>	5.25	59.73	64.49
Micronesia, Fed. Sts.	2.00	0.00	65.00
Singapore	9.52	59.16	65.70
Niue	9.68	0.00	66.53
Thailand	1.84	3.21	70.22
New Zealand <sup>b</sup>	11.61	61.40	74.45
<i>Comparator economies</i>			
Russian Federation <sup>b</sup>	1.37	17.73	40.48
India <sup>b</sup>	1.76	24.37	43.07
South Africa <sup>b</sup>	3.78	33.40	45.68
Brazil <sup>b</sup>	2.07	21.18	63.15
Sri Lanka <sup>b</sup>	3.79	59.85	73.57

Source: WHO 2013.

a. Total tax includes excise taxes, import duties, value added tax, and other taxes.

b. Country has increased tobacco excise taxes overall since 2010. However, because of price variability, the effect is not necessarily apparent in tax indicators.

as Indonesia, Tonga, and Vietnam to develop similar legislation on so-called “sin taxes.”

Implementation of other interventions of the Framework Convention on Tobacco Control such as smoke-free public places, health warnings, and advertising bans also remains relatively weak in East Asia and Pacific, with the exception of a few countries such as Australia, Korea, Malaysia, Singapore, and Thailand. Samoa, Tonga, and Vanuatu each scored 0 of 5 on key aspects of tobacco regulation policies. Tonga, for example, has a tobacco outlet for every 29 households (WHO 2011b).

The majority of the priority actions identified for the prevention and control of NCDs are related to diets and nutrition. Malnutrition includes both over- and undernutrition. Overnutrition, because of unhealthy diets (for example, high consumption of salt and fats) and inadequate physical activity, and its consequences (for example, obesity) pose significant health risks, including higher rates of diabetes, cardiovascular disease (CVD), and cancer. For instance, salt consumption,

a well-known cause of hypertension, is relatively high in East Asia and Pacific (Intersalt Cooperative Research Group 1988). Alcohol abuse is high in countries such as Mongolia and is associated with higher rates of liver disease in the country. Undernutrition and low birthweight, often a consequence of maternal undernutrition, are associated with higher NCD-related risks later in life.

Greater progress is needed on implementing effective health promotion and public health interventions aimed at addressing poor dietary quality, alcohol abuse, and lack of physical activity. Robust evidence points to effective strategies in these areas, as summarized in table 6.6. In recent years, the Pacific Island countries have made numerous efforts to address dietary risks through exercise campaigns at the community level as well as bans on the imports of specific food items with high fat content (Anderson 2013). As is usually the case with behavior-related interventions, however, progress in this area remains slow. Headway in reducing low birthweight also remains slow, not only in low-income

**TABLE 6.6** Effective strategies for the management of key risks such as cardiovascular disease

Areas needing intervention	Recommended strategy
Screening for and management of high blood pressure and high cholesterol	<ul style="list-style-type: none"> <li>Improved diagnosis rates of hypertension and high cholesterol</li> <li>Treatment with an essential package of four readily available and off-patent medicines: aspirin, beta blockers, other antihypertensives such as angiotensin-converting enzyme inhibitors or calcium channel blockers, and statins</li> </ul>
Screening for and management of diabetes	<ul style="list-style-type: none"> <li>Improved diagnosis rates of diabetes in the population</li> <li>Lifestyle interventions focused on diet and exercise patterns, including group-based activities</li> <li>Drug therapy (metformin)</li> </ul>
Screening for cancer risks and early treatment	<ul style="list-style-type: none"> <li>Screening for and treatment of precancerous lesions to prevent cervical cancer</li> <li>Raising of awareness among women, promotion of self-exams, and mammograms for those with elevated risks</li> </ul>
Self-management	<ul style="list-style-type: none"> <li>Patient education delivered in small groups by health professionals</li> <li>Peer education programs to improve diet and physical activity</li> <li>Structured phone support and telemonitoring</li> <li>Online self-management programs and resources</li> </ul>
Medication adherence	<ul style="list-style-type: none"> <li>Reduced out-of-pocket costs of medications</li> <li>Introduction of programs such as reminder or calendar packaging combined with education and reminder strategies (Mahtani et al. 2011); use of mobile phones to send out reminders (Ettenhofer et al. 2009); and provision of new pill bottles<sup>a</sup></li> </ul>

a. New technologies such as pill bottles that glow if pills are not taken are designed to increase adherence rates by combating inattention. A randomized control trial is underway to evaluate their effectiveness (U.S. National Institutes of Health, Clinical Trials Registry, <http://www.clinicaltrials.gov/ct2/show/NCT01798784>).

countries such as Myanmar and Timor-Leste, but also among poorer populations in countries such as Indonesia and Vietnam.

### Managing risk factors more effectively

A range of highly cost-effective interventions can be used to help people avoid developing disease (primary prevention) and avoid complications from the disease once it has developed (secondary prevention), particularly with regard to CVD and cancer. Early detection and effective management of risk factors such as hypertension and diabetes, which can greatly complicate the treatment of CVD later in life, are inexpensive and cost-effective ways of controlling future health care costs. This strategy is part of taking a life-course approach to addressing the causes of illness and disability in old age. Similarly, many types of cancers are preventable, and disease is more amenable to treatment if diagnosed and treated early. Table 6.6 summarizes cost-effective strategies proposed in this section for management of CVD and other risks.

### *Cardiovascular disease*

Effective diagnosis and pharmacological management of those at high risk of developing CVD played an important role in the cardiovascular revolution in the West. That experience is a classic example of secondary prevention: effective treatment interventions are used to avoid complications from conditions that have already developed. The use of inexpensive and readily available aspirin and off-patent drugs such as statins (cholesterol-lowering drugs critical for pharmacological management of CVD-related risks) have been identified as one of the best buys for addressing NCDs (Beaglehole et al. 2011). As shown in table 6.6, an essential package consists of four medicines: aspirin, beta blockers, other antihypertensives such as angiotensin-converting enzyme inhibitors or calcium channel blockers, and statins for reducing LDL (low-density lipoprotein) cholesterol. Extensive use of these medicines in primary and secondary prevention explains more than half the reduction of CVD mortality in developed countries in recent years (OECD 2007).

It should be considered a necessary strategy today in responding to NCDs, in addition to other preventive measures. Proactive screening, prompt treatment, and regular monitoring by qualified medical professionals, combined with patient self-management, are all important.

Yet such practices remain limited in East Asia and Pacific because of inadequate screening and monitoring in the health system, limited efforts at self-management, and high OOP costs. The available evidence points to high proportions of all of these conditions going undiagnosed in most countries in the region, and the likelihood of being diagnosed correlates with socioeconomic status and education. Among those who are diagnosed, medication adherence is low. Moreover, most countries have limited supply-side capacity to screen people and carry out such secondary prevention activities effectively (Mendis et al. 2012). Although aspirin, antihypertensives, and statins are included in the standard package of services in many countries (table 6.7), their high cost means that many patients must pay out of pocket. Such OOP payments occur even though more efficient procurement of these drugs could make them far more

affordable under existing insurance and tax-financed programs. Because of inadequate health financing coverage, many elderly may go without the needed drugs.

Effective diagnosis and management of diabetes are limited in the region for similar reasons. The complications arising from untreated diabetes require acute medical care interventions (for example, dialysis and amputations) and result in severe disabilities. The evidence suggests that effective screening and monitoring, early diagnosis and management of diabetes with lifestyle interventions, and improved self-management can bring enormous cost savings. Even in cases where drugs are required to control blood sugar levels, the costs are higher but still significantly less than the costs of treating the disease when it progresses further. As an example, the costs of treating diabetes in Vanuatu are presented in table 6.8.

### Cancer

As the proportion of elderly increases, the majority of East Asian and Pacific countries face the prospect of rapid increases in new cancer cases over the next 10 to 20 years, not least because too little focus on or investment

**TABLE 6.7** Status of availability of essential package of cardiovascular drugs<sup>a</sup> in selected East Asian and Pacific countries

Country	Are drugs included in the standard benefits package?	Are drugs free of charge in the public sector?
Indonesia	Drugs are included in the benefits package for National Health Insurance.	Yes, in principle, but drugs are not always available.
Malaysia	Yes	Yes
Mongolia	Yes	If obtained at primary care level, drugs are discounted through Health Insurance Fund.
Philippines	Department of Health provides treatment packs (ComPacks) for hypertension and diabetes mellitus, but when the new health insurance benefit package takes effect, ComPacks will be discontinued.	Yes, no copayments are charged.
Sri Lanka	Yes	Yes
Thailand	Yes	Yes
Tonga	Yes	Yes
Vanuatu	Yes	Yes
Vietnam	Drugs are included in principle, but they not always available, particularly at primary care level.	No, co-payments are charged ( $\geq 5$ percent depending on type of insurance).

a. The package includes four key drugs: aspirin, beta blockers, other antihypertensives such as angiotensin-converting enzyme inhibitors or calcium channel blockers, and statins for reducing LDL (low-density lipoprotein) cholesterol.

**TABLE 6.8** Costs of treating diabetes in Vanuatu, 2012

Type of cost	Cost per patient per year (US\$)
Treatment of diabetes for a newly diagnosed patient at primary care level (includes nurse-attended outpatient clinic visits once a month, glucose testing strips, minimal-level laboratory tests, and metformin tablets to control blood sugar levels)	347
— Cost of minimal but essential drugs (metformin)	33
Treatment required as disease progresses (includes cost of regular insulin, increased frequency of blood glucose testing, increased laboratory tests, syringes, and dressings)	831
— Cost of insulin vials	262

Source: Anderson 2013.

in cancer prevention and screening has occurred to date (figure 6.12). Cancer screening and early diagnosis and treatment are particularly important in aging populations. However, most countries in the region have not yet put effective strategies in place.

### Improving self-management and medication adherence

Improving self-management of conditions is an integral part of managing the progression of chronic conditions, particularly in older populations. The ability to self-manage—that is, the patient and his or her family take a more proactive role in contributing to the patient's health outcome in partnership with the health care providers—is affected by access to health care, education, socioeconomic status, and especially health literacy.<sup>4</sup> In the United States and Australia, 70 to 80 percent of older people are estimated to be at risk for low health literacy, while in the United Kingdom, one in three have problems reading and understanding basic health information (Renehan et al. 2012). Self-management interventions for chronic disease that are targeted at the elderly have proved effective in developed countries and are summarized in table 6.6.

Efforts to improve medication adherence are particularly important for the management of hypertension and high cholesterol. In aging populations, cognitive decline and polypharmacy (having to take four or more medications) usually lead to poor medication adherence. For instance, older Australians take nine medications on average. The predictors of multiple medication use include

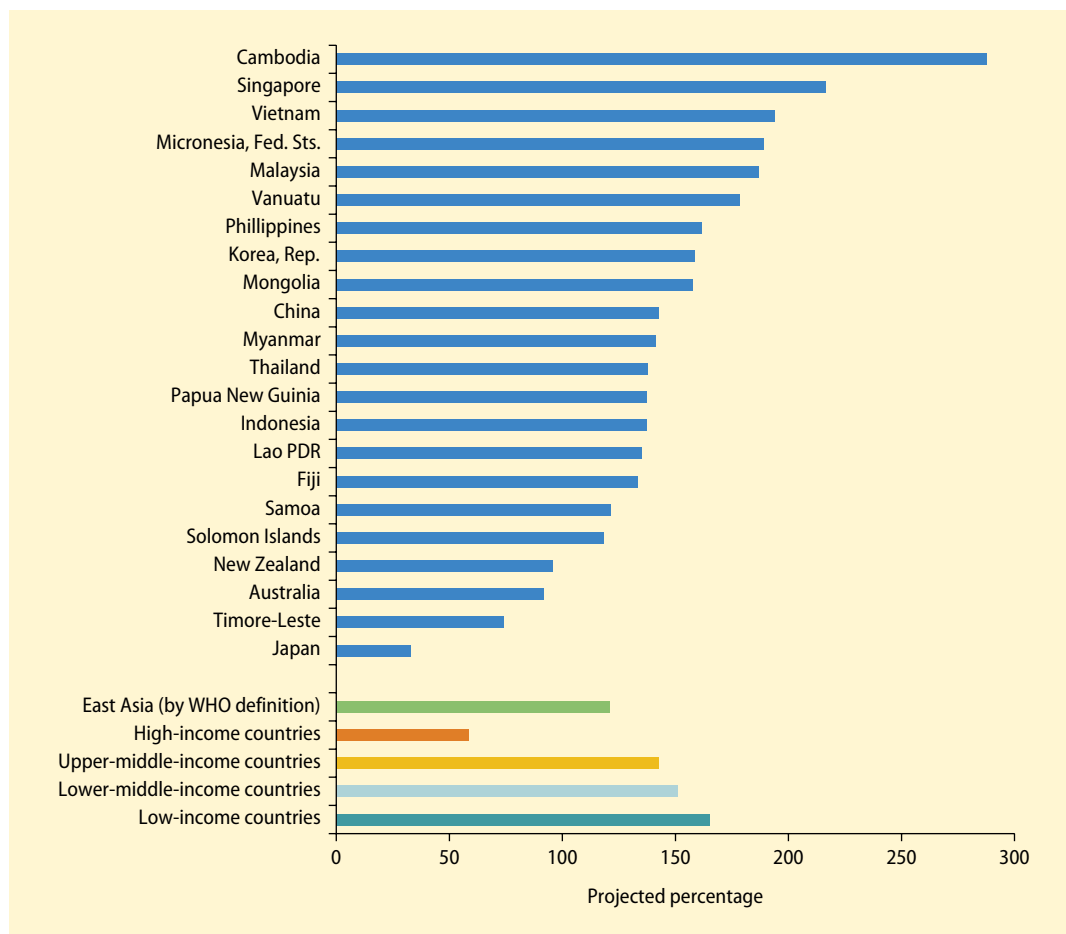
increasing age, female gender, number of diagnoses, recent hospitalization, and depression (Elliott 2006). In countries where coverage is not universal, OOP payments for drugs pose the biggest threat to medication adherence; evidence shows that OOP payments, no matter how small, reduce adherence to medication regimes (Sidorenko and Zaidi 2013). Anecdotal evidence from Mongolia shows that medication for hypertension is often taken only for a high reading of blood pressure and not otherwise. A range of interventions to improve medical adherence through self-management is also summarized in table 6.6.

### Transforming the service delivery system

Transforming service delivery to better meet population needs calls for stronger care coordination throughout the health system. The reformed model would anticipate and shape patterns of care according to the projected health and medical needs of the population while placing considerable emphasis on strengthening the role and raising the quality of primary care. It would include significant strengthening of community-focused care and vertical and horizontal integration (physical layout, information, and communication) of facilities to provide comprehensive services along a continuum or chain of care. The model also would encompass formal outreach to long-term care providers<sup>5</sup> as well as attention to acute care management and rehabilitation and palliative care needs for populations with a growing proportion of elderly.

**FIGURE 6.12 The rising tide of cancer in East Asia and Pacific**

*Projected percentage of new cases of cancers in the elderly, ages 65 and above, selected East Asian and Pacific countries and country groupings, 2012–35*



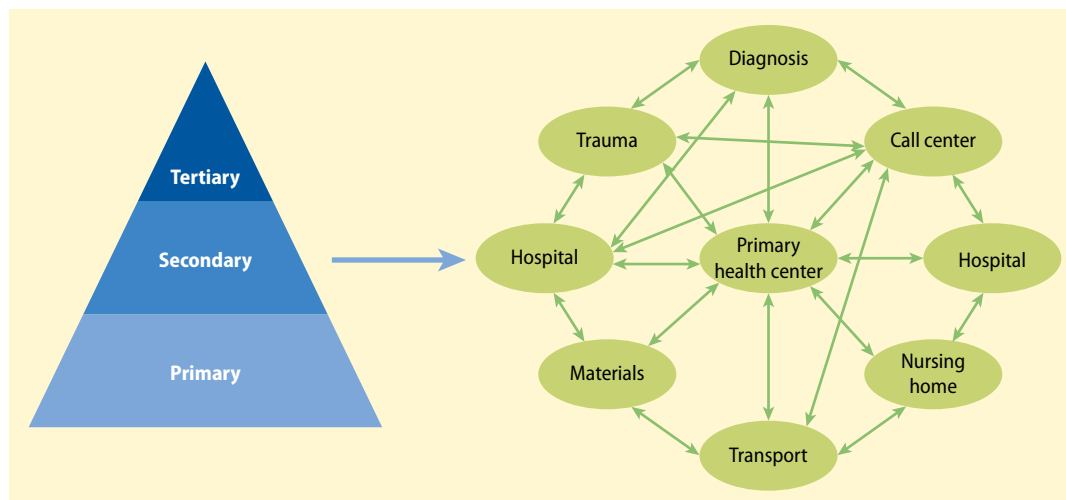
Source: World Health Organization, GLOBOCAN 2012, [http://globocan.iarc.fr/Pages/burden\\_sel.aspx](http://globocan.iarc.fr/Pages/burden_sel.aspx).

Note: WHO = World Health Organization.

Strong primary care is the backbone of an effective delivery system and is the platform for active coordination of care. Clear evidence exists that primary care contributes to better health outcomes, higher-quality and more appropriate care, improved access, better prevention and early management of diseases, and cost containment (Macinko et al. 2010; Macinko, Starfield, and Shi 2003; Saltman, Rico, and Boerma 2006; WHO 2008). In a reformed service delivery system that emphasizes coordination of care,

primary care would be the supervisor for directing patients through the delivery system, as shown in figure 6.13. In OECD countries, the primary and secondary prevention interventions described earlier (pharmacological management of hypertension and high cholesterol and screening and management of diabetes) are increasingly located at the primary level. Some countries have fostered new family medicine and general practice models to facilitate their central role in coordinated care programs. Others, such as Germany,

**FIGURE 6.13** A health system is transformed from a pyramidal model into a primary care–driven coordinated care model



Source: World Bank 2013a.

**TABLE 6.9** Key design features of an effective coordinated care strategy

Area needing intervention	Key design feature
Reference population	Definition of a target population (such as all diabetic patients in a region) that will be covered by the program or intervention
Prioritization of health needs	Intervention design based on the health needs of the population within a defined territory, with a focus on risks or pathologies
Central role of primary care	Primary care as the essential delivery platform, with regulated and structured access to other providers (for example, specialists, hospitals, diagnostics, and pharmacies)
Continuum-of-care strategy	Integration or linking of care (including promotion, prevention, treatment, rehabilitation, and palliation) among different levels and providers, definition of roles for each provider within an interdisciplinary framework, and use of evidence-based guidelines or clinical pathways involving multiple providers
Organized decision-support systems	Possible involvement of data management and communication systems for patient records, provider–patient interaction, and monitoring of provider performance and patient experience
Patient and family participation	Involvement of patients and family members in care management planning and implementation
Special financing arrangements	For some programs, financial incentives to providers for participation

Source: World Bank 2013a.

incentivize patients to register with primary care providers.

Coordination of care involves linking professionals and organizations at all levels of the health system, emphasizing patient-centered care integration, managing patient referral through the delivery system, and promoting follow-up care and the continuity of long-term service provision. Table 6.9 lists the key

design features of the reformed service delivery model advocated in this report.

Coordination of care emerged in the OECD countries in response to pressures similar to those currently faced by many East Asian and Pacific countries. These pressures included cost inflation, growing burden of chronic conditions, aging populations, technological change, and rising

population expectations (Curry and Ham 2010; Hofmarcher, Oxley, and Rusticelli 2007; OECD 2010, 2012, 2013). Box 6.4 outlines five of the main coordinated care strategies adopted in OECD countries. The strategies are aimed at containing costs by reducing unnecessary use, frequent hospitalization, inappropriate admissions, and avoidable readmissions. Box 6.5 summarizes the evidence to date on the effect of coordination of care on key health system outcomes.

### **Managing acute care episodes more effectively**

Even as the emphasis is correctly placed on shifting the balance of care from treatment to prevention and management of disease, the need to better manage the consequences of CVD should not be ignored. Treatment of the consequences of CVDs accounted for 40 to 50 percent of the reduction in mortality in OECD countries. Acute medical treatment of the consequences of CVD will always be needed, particularly in aging populations. Efforts must be made to ensure adequate staffing; well-equipped facilities; and adoption of new, cost-effective treatment technologies such as clot-dissolving drugs that are part of high-quality and effective cardiovascular care.

### **Preparing for functional and cognitive decline among the elderly**

The demographic shift in East Asia and Pacific will give rise to many of the degenerative diseases of older age, highlighting the importance of introducing timely and effective interventions to slow the progression of these conditions and ameliorate their effects. These diseases include the sensory organ disorders of old age such as worsening eyesight (cataracts and macular degeneration emerge around age 60) and hearing, as well as weakening of bones and joints leading to osteoarthritis and osteoporosis. Although not affecting mortality directly, these conditions can have important effects on disability levels,

healthy life expectancy, and age at exit from the workforce.

The good news is that a range of interventions can help slow functional decline among the elderly and save costs (table 6.10). For instance, despite increases in aging, vision has improved over time in Spain, Sweden, and the United States as a result of effective and timely interventions (Christensen et al. 2009). Interventions to prevent falls among the elderly have been shown to produce positive public health benefits such as reduced costs of care and hospitalization, and treatment of osteoarthritis is known to improve quality of life and functional capacity (Renehan et al. 2012; WHO 2014b).

Functional decline and NCD-related disabilities will mean increased demand for rehabilitation and longer-term follow-up care, which makes effective coordination of care critical. In East Asia and Pacific at present, the majority of these services are provided in acute care hospital settings. This pattern of care is not only inefficient but also inequitable, because hospitals are used mainly by those who can afford such care. Effective coordination of care can provide for post-discharge planning and follow-up care for chronic disease patients with complex needs and reduce the likelihood of hospital readmissions. By ensuring that chronically ill elderly patients receive the follow-up care they need in a primary care setting or at home instead of at the hospital, countries achieve cost savings, and the patient's quality of life is improved.

Likewise, demand for palliative or end-of-life care for cancers and other painful chronic conditions will increase, requiring coordination of care between acute care and palliative care settings. In high-income countries, aggressive therapy beyond the point of a reasonable chance of recovery is often expensive and unnecessary and not always consistent with the wishes of the patients themselves. Although high-cost aggressive therapies to treat cancer and other chronic conditions at the end of life are not a feasible option for most people in middle- and low-income East Asian and Pacific countries, spending



### BOX 6.4 Care coordination strategies in Organisation for Economic Co-operation and Development countries

Five main coordinated care strategies observed in Organisation for Economic Co-operation and Development member countries are outlined below. Some overlap occurs in program features across categories, and the list of strategies and initiatives is not exhaustive. Many countries have launched coordinated care efforts, but documentation is limited in terms of describing the *what* and *how* of these programs.

#### Shifting care out of the hospital to ambulatory settings for shared management of patients with chronic diseases

- Relocation of clinicians from hospitals to primary care settings.
- Incorporation of specialists into multidisciplinary primary care teams: in some countries, this method is referred to as a multidisciplinary team approach to care management.
- Educational outreach in which hospital-based specialists provide instruction and advice on screening, referrals, and treatment.

#### Shifting care from hospital and ambulatory settings to the home

- Telemedicine and communication outreach between outpatient clinics or hospitals and households. Interventions involve e-consultations, e-prescriptions, e-diagnostics and monitoring, and e-reminders (the United Kingdom and the United States).
- Outreach home visits and hospital-at-home programs, which consist of home visits by nurses or community health advisers for both chronic disease management and health promotion. This approach can be used in combination with telemedicine and electronic outreach interventions (for example, Sweden, the United Kingdom, and the United States) (Health Foundation 2011).

#### Targeting specific diseases or cases

- Disease management programs that focus on disease-specific objectives, treatment goals, and referral criteria for a defined population (for example, diabetic patients). Programs generally target high-cost and high-risk patients with one chronic condition. Interventions are oriented to the entire course of a specific disease and usually are founded on evidence-based guidelines. A single care coordinator, usually part of a

multidisciplinary team, is responsible for locating, monitoring, and coordinating care based on a care plan.

- Community-based day centers for frail elderly, which refers to special programs for frail elderly and patients with multiple and usually disabling conditions. One-stop shops provide a full range of health and social services and operate somewhat like geriatric day wards. Services are provided by a multidisciplinary team of nurses, physicians, nutritionists, social workers, therapists, and so on and follow a care plan. Programs usually work closely with home support and assisted living initiatives that aim to keep the elderly living in their communities rather than in institutional care.

#### Fostering transitional care practices

- Postdischarge planning and follow-up care for chronic patients with complex needs. These programs center on patients with multiple conditions who are discharged from hospitals. The model provides comprehensive medication management, step-down rehabilitation, self-management education for patients and families, and timely outpatient follow-up with primary care providers. Hospital and primary care providers work together to address clinical and social issues that can affect the patient's recovery. The objective is to reduce readmissions and emergency room visits.

#### Establishing accountable primary care organizations

- Patient-centered medical homes, defined as “an enhanced model of primary care that offers whole-person, comprehensive, ongoing, and coordinated patient and family-centered care” (Kaye, Buxbaum, and Takach 2011). Initiated in the United States, medical homes consist of an organized group of ambulatory providers that furnish comprehensive care to individuals, including the elderly and those requiring complex care. Patients register with a primary care practice or center, which is responsible for coordinating care, navigating the delivery system, and arranging care as needed. Providers are financially accountable for furnishing quality care while containing costs. They generally present a comprehensive menu of services, including diagnostics and pharmacotherapies.

Source: World Bank 2013a.

**BOX 6.5 The effect of care coordination on key health system outcomes**

Coordination of care has the following effects on key health system outcomes.

**Positive effect on patient functional status and outcomes, but ambiguous effect on mortality**

- The effect is positive, especially when multiple strategies such as case conferences, care plans, and funding were used to coordinate care (Ouwens et al. 2005; Powell-Davies et al. 2008).
- Kaiser Permanente members also experience more comprehensive and convenient primary care services and much more rapid access to specialist services and hospital when required (Pike and Mongan 2014).

**Positive effect on efficiency through reduced hospitalizations**

- In Medicare randomized trials, programs in which case managers had substantial direct interaction with physicians and significant in-person interaction with patients were more likely to reduce hospital admissions than programs without those features, but no program was likely to reduce overall costs (Peikes et al. 2009).
- Review of effect of chronic care management found that patients with heart failure were less likely to be hospitalized when care was provided by a multidisciplinary team and when communication between providers and patients

was conducted in person rather than by phone (Sochalski et al. 2009).

- When compared with the National Health Service (NHS) in the United Kingdom, Kaiser Permanente performs better: of 11 medical conditions studied, the United Kingdom's NHS uses 3.5 times the number of bed days as Kaiser for those ages 65 and above (Pike and Mongan 2014).

**Mixed or insignificant effect on costs**

- A review of systematic reviews and meta-analysis of the effectiveness of care programs in the United States and in the United Kingdom and other parts of the European Union found mixed or insignificant evidence of integrated care resulting in cost savings (OECD 2012; Ouwens et al. 2005).
- Medicare randomized trials showed that costs were generally higher for patients enrolled in the coordination arm of the trial compared with patients in the control arm, although these differences were not statistically significant in most instances (Peikes et al. 2009).
- Overall, evidence suggests that the effect on costs depends on the types of diseases being treated and whether these conditions are associated with high-cost unnecessary treatment or with under-treatment before the integrated care initiatives (RAND Europe and Ernst & Young 2012).

Source: OECD 2012.

**TABLE 6.10 Effective strategies for slowing functional decline among the elderly**

Area needing intervention	Recommended strategy
Worsening eyesight	<ul style="list-style-type: none"> <li>• Regular eye examinations, including interventions to diagnose and treat glaucoma and macular degeneration</li> <li>• Provision of cataract surgery (often on an outpatient basis), which can minimize vision impairment with older age</li> </ul>
Worsening hearing	<ul style="list-style-type: none"> <li>• Regular hearing tests with follow-up hearing support mechanisms such as hearing aids to help reduce hearing-related disabilities; tests often included in benefits packages in Organisation for Economic Co-operation and Development countries but rarely in East Asian and Pacific countries (WHO 2014b)</li> </ul>
Weakening bones and joints	<ul style="list-style-type: none"> <li>• Treatment of osteoarthritis using nonsteroidal and other pharmacotherapies</li> <li>• Improved calcium intake and exercise throughout life</li> <li>• Access to joint replacement operations to improve functional ability and independence</li> <li>• Introduction of fall interventions focused on both personal and environmental factors</li> <li>• Inclusion of information about personal interventions such as strength and balance training in routine health education programs for the elderly</li> </ul>

their last few days or months in hospital is often the only option available because hospice and palliative care services barely exist. Eventually, systems in the region will need to consider expanded coverage for hospice and palliative care, as well as enhanced case management and web-based tools and information for end-of-life care. Good palliative care would include the use of assessment tools (see below) that allow patients and their families to decide on the level of comfort versus cure at the end of life (*Lancet* 2014).

Delaying the onset of cognitive function disorders and managing their symptoms will also require attention through integrated health and social networks. There are few effective treatments for dementia, although the reduction of CVD risk factors has been identified as having a protective effect (WHO 2012). Current expenditures on dementia-related costs already amount to 1 percent of GDP worldwide and 1.24 percent of GDP in high-income countries (Wimo and Prince 2010). Much of the care is provided through family and social networks, but these are straining with economic development. As a result, ensuring that interventions are put in place to diagnose early, delay onset, and manage symptoms through integrated health and social networks is even more important. Similarly for depression, limiting psychosocial stressors through support and long-term care will become imperative.

Stronger coordination of care is critical for improving access to care and saving costs in relation to cognitive function disorders, as well. In mental health services, a number of OECD countries have seen a recent shift from hospital-based care to coordinated community care (for example, Australia, the Nordic countries, and the United Kingdom) (OECD 2013). Coordinated mental health care and integrated treatment have led to improved service delivery and better clinical outcomes. Following this approach, fewer readmissions, reduced use of intensive care services, and contact with community crisis teams have resulted in cost savings (Rosenheck, Resnick, and Morrissey 2003; Stewart et al. 2012; Woods and McCollam 2002).

Assessment instruments that create person-focused, longitudinal records that can be viewed, understood, and used across the continuum of care are vital for ensuring continuity of care for the elderly. The use of the same protocols to support care planning in sectors between which people may move (for example, acute, community, and residential care) allow for a collaborative approach to service provision that spans the continuum of care. The focus is on recording information about the individual and his or her changing strengths, abilities, and preferences (for example, palliative care preferences) rather than the information required only by a particular care setting where that person happens to be at any given time. Currently, the interRAI suite of assessment instruments is the only example of this type. This integrated system enables transfer of common information across care settings, thereby facilitating continuity of care across transitions. A number of OECD countries are now introducing the interRAI instruments in response to growing pressures on care delivery services (OECD and European Commission 2013).<sup>6</sup>

The transformation of service delivery described above is likely to require substantial additional resources, particularly with regard to health workforce requirements. As discussed, the current primary care system in most East Asian and Pacific countries is far from adequate to carry out the kinds of functions described and will need complete rebuilding. Strengthening the capacity of and adequately resourcing the primary care level will be essential for fostering and sustaining coordinated care approaches. Many countries in the region such as China and Vietnam have organizational roadmaps in place for strengthening primary care as well as reform pilots, but scaling up of small-scale reforms is yet to begin. Staff skills will need to be improved, and in some cases, a whole new cadre of staff members such as general practitioners and geriatricians may need to be created.

The health infrastructure may eventually be transformed, too. For the service delivery model described earlier, smaller hospitals and

intermediate facilities (ambulatory surgical units, day hospitals, and specialty clinics) and larger primary care centers combined with greater use of communication technologies for community, long-term care, and home outreach would be more appropriate. As is the case in several OECD countries, hospitals themselves may need to adapt more flexible designs that respond to changing demand and technological change (Rechel et al. 2009). All of these changes will require substantially higher spending on health.

### Getting better value for money from health systems

Because mobilizing new resources to meet all of the additional requirements of service delivery reforms would simply not be sustainable, generating efficiency savings to gain better value for money from existing health systems is imperative in the region. Although the reformed service delivery model will generate significant efficiency savings over time, the initial investment costs are likely to be substantial. Meanwhile, other policy priorities—not least of which is the policy commitment to achieve universal health coverage—will continue to place huge demands on East Asian and Pacific governments' budgetary

allocations to the health sector. Health system inefficiencies are already exerting pressure on tax and social health insurance revenues. Service delivery reforms are thus critical to ensure the sustainability of health systems for aging populations and justify additional investment.

In the short to medium term, significant efficiency savings could be gained in three areas: (a) paying providers, (b) purchasing pharmaceuticals, and (c) prioritizing among available interventions and technologies. Stronger purchasing capacity is a cross-cutting issue. The key strategies in these areas are summarized in table 6.11.

Strengthening provider payment methods to align providers' incentives with delivering good-quality, effective care is essential in East Asia and Pacific. Optimal systems do not exist, and provider payment systems and incentives need to be designed to address the specific policy issues and objectives inherent in a country's health sector. However, regional and global experience provide a few key trends that the region's countries can draw on, as described below.

For physician services, three provider payment models tend to dominate: salary, capitation, and FFS, or some combination of the three. The specific FFS model used in

**TABLE 6.11** Effective strategies for getting better value for money from health systems

Area needing intervention	Recommended strategy
Paying providers	<ul style="list-style-type: none"> <li>• Movement away from line-item budgets and fee-for-service payments</li> <li>• Introduction of capitation payment systems for physicians and primary care providers and global budgets with case mix–adjusted payments for hospitals</li> <li>• Consideration of bundled payments to providers for specific medical conditions (for example, diabetes)</li> </ul>
Purchasing pharmaceuticals	<ul style="list-style-type: none"> <li>• Reform of drug procurement and movement toward smart strategic purchasing</li> <li>• Risk-sharing arrangements, such as price-volume arrangements, for high-cost drugs</li> <li>• Sole-source tendering in which the winning bidder is sole supplier for a fixed term</li> <li>• Therapeutic reference pricing</li> </ul>
Prioritizing among available interventions and technologies	<ul style="list-style-type: none"> <li>• Institution of clear, transparent processes to make decisions about new technologies and drugs</li> <li>• Use of the findings from more established health technology assessment (HTA) agencies to inform their own prioritization process (for example, de facto HTA)</li> </ul>
Ensuring strategic purchasing capacity	<ul style="list-style-type: none"> <li>• Movement toward a single purchaser</li> <li>• Building of strategic purchasing capacity</li> <li>• Investment in health information management systems</li> </ul>

Japan; Korea; and Taiwan, China, has been successful in avoiding the cost inflation associated with FFS payment in many settings. Capitation payment has emerged as more effective in controlling costs, particularly in relation to primary care (see box 6.6 for Thailand's experience with capitation).

For inpatient care services, countries have been moving toward some combination of global budgets and case mix-adjusted

payment categories within the hospital sector. In Western Europe, most countries have moved to a performance-based approach using some combination of payment per admission based on case mix-adjusted diagnosis-related groups. Turkey adopted a global budget for all ministry hospitals, which has helped control spending growth (see box 6.6).

High-income countries are now experimenting with bundled payments to providers

### **BOX 6.6 Cost containment through provider payment and purchasing reforms in Thailand and Turkey**

#### **A single purchaser, virtually**

The National Health Security Office (NHSO) is the largest purchaser in Thailand, purchasing services on behalf of 75 percent of the population (approximately 50 million Universal Coverage Scheme members). NHSO has adequate strategic purchasing capacity and has used its bargaining power to reduce the price of medicines, medical products, and interventions over time. For instance, the price of hemodialysis decreased from US\$67 to US\$50 per cycle, leading to savings of US\$170 million per year.

#### **Capitation payment and diagnosis-related groups with a global budget**

The combination of mixed payment methods (capitation for outpatient care and diagnosis-related groups for inpatient care) with a global budget for inpatient care has further contributed to cost containment in Thailand. The closed-end payment system has provided strong signals to providers to contain costs by prescribing generic medicines, dispensing medical technologies appropriately, and encouraging preventive treatments. At the same time, to counteract underprovision of services, NHSO has established procedures such as (a) a 24-hour complaint management mechanism operated by NHSO staff, (b) quality assurance through hospital accreditation processes, (c) routine auditing by random medical audit teams with financial penalties, (d) utilization reviews to monitor utilization rates, and (e) an annual poll survey of consumers' and providers' satisfaction conducted by independent polling institutes.

Despite those measures, one should note that overall Universal Coverage Scheme expenditures

have continued to rise. The cost per member rose from B 1,201.40 in 2002 to B 2,693.50 in 2011, or from a total of less than B 60 billion in 2002 to over B 120 billion in 2011. This is equivalent to a 70 percent increase in real terms over the period. The increase is attributed to rising remuneration of health care staff, particularly a rapid increase in extra incentive payments to keep highly skilled professionals in the system.

#### **Performance-based supplementary payment system**

During the 2000s, Turkey undertook comprehensive hospital reforms in the context of the Health Transformation Program, which was geared toward improving effectiveness, equity, and efficiency. A key reform was the introduction of a performance-based supplementary payment system for employees of Ministry of Health hospitals beginning in 2004, based on specified individual and institutional criteria. The changes in hospital financing were facilitated by reforms that brought together all previous health insurance schemes under the umbrella of the Social Security Institution. Furthermore, expenditure caps for ministry, private, and university hospitals have been introduced in recent years to ensure controlled growth in hospital spending in line with gross domestic product. In 2007, a fixed global budget for all ministry hospitals was implemented, which has been successful in containing further spending growth in these hospitals. Since 2010, the government has also successfully maintained spending with agreed limits for university and private hospitals.

*Source:* Hanvoravongchai 2013; World Bank 2013b, 2013c.

for specific procedures or medical conditions, an approach that holds potential for aging populations (Mandeville and Sinnott 2014; Painter, Burns, and Bailit 2012). Under this method, fixed payments cover a set of services for a defined time period, usually including both inpatient and outpatient care. Bundled payments for chronic conditions such as diabetes have created incentives for primary and secondary care providers to move care out of the hospital. High-quality primary care has prevented expensive inpatient stays for avoidable complications.

Finally, the presence of a large purchaser with adequate strategic purchasing capacity has generally proved critical for cost containment. Being a large, preferably single purchaser gives the purchaser greater bargaining power to negotiate prices with providers and to control utilization and quality.

Inefficiencies in purchasing pharmaceuticals result in high prices being paid for drugs, suggesting opportunity costs in terms of improving cost-effectiveness and reducing co-payments. Table 6.12 compares the prices of common statins in selected countries. For example, for off-patent common statins (atorvastatin and simvastatin), the price in Vietnam is more than twice that in New Zealand.

East Asian and Pacific countries can learn from pharmaceutical purchasing strategies that have been used in countries within and outside the region to reduce drug prices. These strategies include risk-sharing arrangements for high-cost drugs such as price-volume arrangements, whereby the manufacturer

pays for any volume over the agreed threshold (for example, Korea); sole-source tendering in which the winning bidder is the sole supplier for a fixed term; and therapeutic reference pricing in which the purchasers set fixed reimbursement levels for the price of a drug by referencing a base drug within that therapeutic class (Mandeville and Sinnott 2014). Box 6.7 compares purchasing strategies in Korea, Sri Lanka, and Thailand with the highly inefficient purchasing arrangements in Vietnam. Strong purchasing capacity is as critical for undertaking smart purchasing of drugs as it is for undertaking provider payment reforms.

When new technologies or drugs become available, most countries—particularly those with social health insurance-financed systems—grapple with decisions about including them in the benefits package and at what level of patient cost sharing. As discussed, the differential adoption and diffusion of costly product innovations in the health sector in OECD countries explains the increase in per capita costs of elderly across countries, and not aging itself. Costs have been contained far more effectively in countries such as Japan that have been more successful in rationing the growth of technology compared to the United States, for example. Ideally, decisions regarding new technologies and drugs should be based on objective criteria such as cost-effectiveness, efficacy, and potential effect on the status of budgets and health insurance funds and should be determined through a transparent process. In practice, decision making is a priority-setting

**TABLE 6.12 Price comparisons of cholesterol-lowering drugs in selected countries**

Drug	Atorvastatin	Pravastatin	Lovastatin	Simvastatin
Quantity	30 × 20 mg	30 × 20 mg	30 × 20 mg	20 × 20 mg
United Kingdom, retail price (US\$)	2.74	2.47	—	1.53
New Zealand, retail price (US\$)	1.10	4.31	—	0.53
Sri Lanka, retail price (US\$)	0.17	<sup>a</sup>	0.20	—
Thailand, retail price (US\$)	2.89	<sup>a</sup>	<sup>a</sup>	0.93
Vietnam, retail price (US\$)	2.41	—	1.27	2.52

Sources: Data from U.K. National Health Service (NHS); New Zealand Pharmaceutical Management Agency; Sri Lanka Ministry of Health; and Vietnam Social Security Agency.

Note: mg = milligram; — = not available. Drug prices listed are those in public system in each country (for example, NHS in the United Kingdom, Ministry of Health and Indigenous Medicine in Sri Lanka, National Health Security Office in Thailand, and Vietnam Social Security in Vietnam).

a. This drug is not included in the drug list.



### BOX 6.7 The power of smart purchasing: Pharmaceutical procurement in the Republic of Korea, Sri Lanka, and Thailand versus Vietnam

#### Smart purchasing

- *Republic of Korea.* Since 2006, the Korea National Health Insurance Service has had a positive list of drugs in the benefits package and provides two distinct steps for addition of new drugs in the list. When a new drug is imported or produced, the Health Insurance Review and Assessment Service makes a decision to list the drug based on cost-effectiveness, clinical effectiveness, and budget effect and whether and at what price the drug is reimbursed in other countries. The National Health Insurance Service then negotiates the prices of the drug directly with pharmaceutical manufacturers using a price-volume arrangement. The price is negotiated on the basis of expected sales as well as the substitution effect. If actual sales exceed expected sales during a specific period, the price is reduced proportionately. The decision to include the drug in the positive list is made at the end of the process.
- *Sri Lanka.* The Ministry of Health undertakes centralized procurement for drugs on behalf of all public sector hospitals and facilities, which gives it strong monopsony power. In addition, procurement is done globally. By seeking global markets instead of regional markets alone, the ministry is able to secure the best prices. Procuring drugs at exceptionally low prices has enabled it to provide universal coverage of the essential package of drugs needed to manage cardiovascular disease risks (antihypertensives, statins, and so on) at no cost to patients in the public sector since 2012.
- *Thailand.* The pharmaceutical benefits package is based on the National Essential Drug List, which includes medicines that are selected on the basis of effectiveness, safety, and cost-effectiveness. The Universal Coverage Scheme also has strong

monopsony power to negotiate prices with service providers and suppliers. For high-price pharmaceuticals, a central price negotiation system is used to collectively bargain for the best-priced items. The Universal Coverage Scheme previously also used the threat of compulsory licensing of medicines to obtain cheaper prices for drugs that are under patent. The National Health Security Office is estimated to have saved B 12.5 billion through cost-control measures, including savings on pharmaceuticals.

#### Not-so-smart purchasing

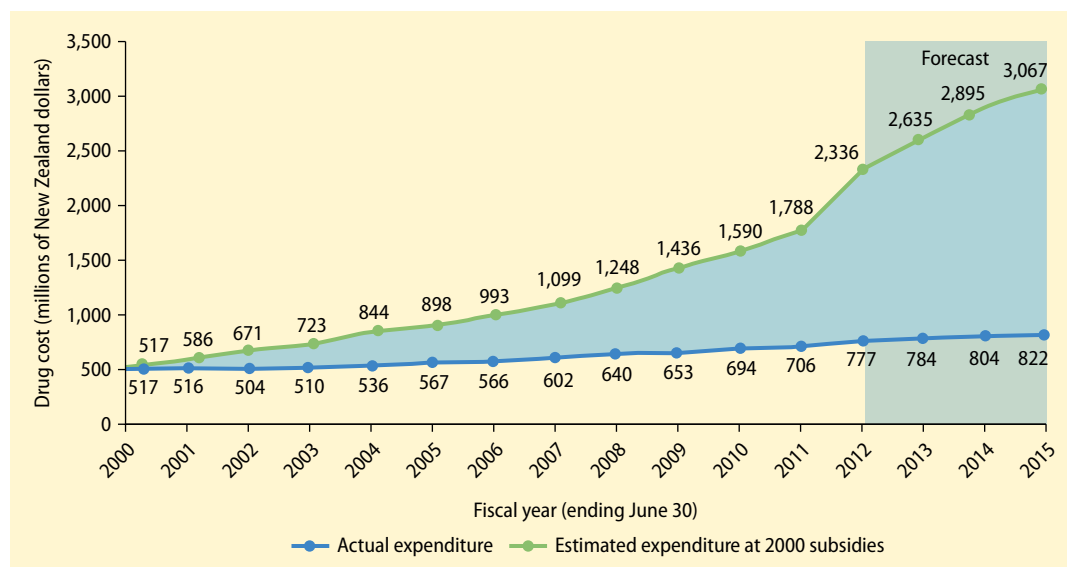
- *Vietnam.* The current procurement system is highly decentralized and complex, involving more than 1,000 entities. It results in wide differentials in prices of medicines, often for the same type, dosage, and formulation across hospitals and supplies. The procurement system is also characterized by irregularities that contravene procurement regulations, which mandate awarding of the contract to suppliers with the lowest prices. Members of hospital procurement committees report that winning bids are often based on doctors' requests and perceptions of quality and efficacy or on hospital management decisions. Doctors' perceptions are influenced by commissions from pharmaceutical companies. An audit found that tender prices were 47 to 357 percent higher than the actual winning bids and that prices of winning bids were often higher than prices offered by unsuccessful bids. In Hanoi, the prices of winning bids are 130 to 245 percent higher than the import prices, including cost, insurance, and freight costs.

Sources: Hanvoravongchai 2013; Lee 2013; personal communication in 2014 with Ravindra P. Rannan-Eliya, Institute for Health Policy, Sri Lanka; Somanathan et al. 2014.

exercise that involves value judgments and is influenced by a mix of political, social, and economic factors.

Many OECD countries have introduced explicit prioritization systems—health technology assessments (HTAs)—that transparently assess the value for money of new technologies.

This approach is a systematic and transparent appraisal and deliberation process for making decisions on public reimbursement of medical technologies, devices, and procedures. It can be very effective; for instance, New Zealand's PHARMAC (Pharmaceutical Management Agency) has been highly successful at keeping

**FIGURE 6.14 PHARMAC has positively affected drug expenditure over time in New Zealand***Actual drug spending versus projected drug spending at 2000 subsidy levels, 2000–2015*

Source: PHARMAC 2012.

Note: PHARMAC = Pharmaceutical Management Agency.

costs down over a 12-year period by combining HTAs with strengthened pharmaceutical procurement (figure 6.14) (Mandeville and Sinnott 2014).

In East Asia and Pacific, two strategies can be pursued to support the prioritization of new technologies and drugs: institute a transparent process for prioritization and use findings from more established HTA agencies to inform prioritization processes. These approaches can be followed even if HTA capacity has not yet been established because developing national capacity to undertake HTAs is costly and can take several years.

#### *Institute a transparent process for prioritization*

This strategy typically involves a committee consisting of, among others, providers and researchers who are charged with making recommendations based on clear and agreed-upon criteria such as cost-effectiveness, medical necessity, and financial burden on patients. The committee and decision process can be used not only for inclusion of new interventions, but also for delisting existing

services and setting co-payment rates for different types of services, providers, and patients. Thailand's Universal Coverage Scheme and Korea's National Health Insurance program provide good examples of this process (box 6.8).

#### *Use findings from more established HTA agencies to inform prioritization processes*

Kosovo, Romania, and Serbia looked to the experiences of other HTA agencies. For example, they used a de facto HTA method by drawing on recommendations of the United Kingdom's HTA agency (National Institute for Health and Clinical Excellence) to assess the cost-effectiveness of their national formularies. Using this method, Serbia was able to renegotiate prices on a range of drugs and save millions of euros.

#### **Preparing communities and institutions outside of the health system**

Several interventions outside of the formal health care delivery system can help prepare society for the emerging needs of an



## BOX 6.8 Good examples of decision-making processes for new technologies in East Asia and Pacific

### Thailand

The Thailand National Health Security Office's (NHSO) Committee on Benefits Package is charged with revising the benefits package and making recommendations to NHSO on the adoption of new drugs and technologies based on guidelines established in 2010. NHSO makes requests to the Health Intervention and Technology Assessment Program and the International Health Policy Program—two technical agencies working on health technology assessment and health system evaluation under the Ministry of Public Health—to supply evidence such as the effectiveness and cost-effectiveness of various health interventions that will be considered for expansion of the benefits package. Financial feasibility, budgetary effect, and ethical considerations are among the criteria applied. The schematic diagram of the decision process is provided in figure B6.8.1.

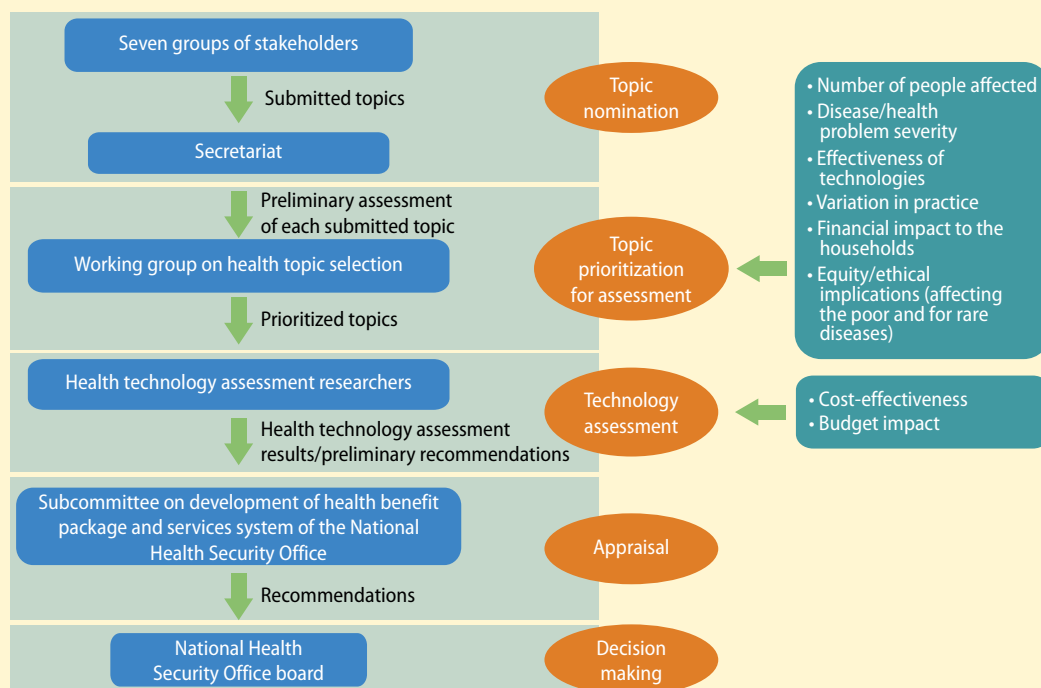
### Republic of Korea

The National Health Insurance program carries out the following steps to add new services and technologies to the benefits package:

- Consumer or provider groups make a request to include a new health technology or intervention.
- The request is reviewed by expert committees at the National Health Insurance Service and Health Insurance Review and Assessment Service on the basis of various criteria (clinical effectiveness, cost-effectiveness, number of patients affected, financial out-of-pocket burden, and budget effect).
- The final decision is made by the Health Insurance Policy Committee (a tripartite committee consisting of consumers, providers, and the government or public sector).

Sources: Hanvoravongchai 2013; personal communication from Soonman Kwon, Seoul National University, 2014.

**FIGURE B6.8.1 National Health Security Office's decision process for new technologies involves extensive criteria in Thailand**



increasingly older population (table 6.13). For instance, ensuring ready availability of assistive devices and aids such as upper and lower limb prostheses, assistive devices for toilet use and bathing, walking sticks and frames, wheelchairs, lifting hoists (for lifting people in and out of bed, for example), and adaptive transport are key items that can assist in mobility and increase independence of older people with disabilities. In addition, installing environmental features (for example, wheelchair ramps; wheelchair-friendly transport, homes, offices, and buildings; ample seating; and safe footpaths) can enable older people with disabilities to circulate within their communities (WHO 2014b). Finally, improvements in public spaces could encourage walking and other physical activities, which not only reduce the risk of chronic disease, but also exert protective effects by strengthening the physiological systems of older adults and reducing functional limitation such as that from osteoarthritis (Beard et al. 2011).

Equally important are changes to organizational culture in the workplace to accommodate an increasingly older workforce. This includes the social environment within businesses, institutions, and service agencies. As older workers form a larger proportion of a shrinking workforce, businesses that can keep these existing workers—in whom they

often have invested time and money and who hold a detailed understanding of systems and practices—and attract others will have a competitive advantage. An important factor in increasing the motivation and thus retention of mature workers will be the work environment itself. Even if workers have the ability and motivation to work, a poorly adapted workplace culture will discourage retention of mature workers (Eide, Krause, and Rosas 2001; Seike, Biggs, and Sargent 2011).

## Conclusion

The range of recommended policy measures could help East Asian and Pacific countries address their health care challenges in a fiscally sustainable manner and improve outcomes for the elderly. As discussed earlier, even without the effects of aging, the expected increase in disease burden attributable to NCDs and the inefficiencies in the financing and delivery of health services are likely to drive up health care costs and undermine fiscal sustainability. The various measures proposed in this chapter would help address NCD risks in a highly cost-effective manner and improve the effectiveness and efficiency of health care service delivery, leading to better health outcomes for both the elderly and the broader population. At the same time,

**TABLE 6.13** Effective strategies outside of the health system to prepare for functional and cognitive decline in old age

Area needing intervention	Recommended strategy
Access to assistive devices	<ul style="list-style-type: none"> <li>• Ensure assistive devices are widely available and affordable, potentially at subsidized prices.</li> </ul>
Access to recreation and public spaces	<ul style="list-style-type: none"> <li>• Improve public spaces: wheelchair-friendly transport systems and ramps, ample seating, safer footpaths, welcoming neighborhood shopping areas, and easily accessible parks.</li> </ul>
Improvement of the workplace environment	<ul style="list-style-type: none"> <li>• Introduce health promotion programs when health benefits are linked to work employment (for example, supervised fitness programs, smoking cessation, nutritional and improved dietary intake, and return-to-work programs).</li> <li>• Target health promotion for mature workers, taking into account relevant issues such as gender (for example, wellness programs that account for the needs of mature women, such as osteoporosis prevention).</li> <li>• Consider issues related to occupational demands such as balance, flexibility, and sensory requirements (for example, improved lighting, larger signage, and volume-adjusted communication technologies) (Eide, Krause, and Rosas 2001).</li> </ul>

pressure on the health care system could also be relieved by reducing the current default reliance on health systems for long-term care of the elderly, which is discussed in detail in chapter 7 of this report.

## Notes

1. Interestingly, the percentage of elderly who reported having an exam was considerably higher among the one-fourth of those ages 60 and older who participated in an elderly club during the past year, especially at more advanced ages.
2. M. L. Sang provided information based on research carried out for preparation of the Vietnam Health Professional Education and Training project.
3. Members of the EU-27 are Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, the Slovak Republic, Slovenia, Spain, Sweden, and the United Kingdom.
4. Health literacy refers to an individual's capacity to seek, understand, and utilize health information to make informed decisions about his or her own health (U.S. Department of Health and Human Services 2000).
5. The service delivery reforms proposed here draw extensively from work on service delivery reform in China led by the World Bank from 2013 to 2015. The final report of this study will be published in 2016 by the World Bank.
6. For more information, see the interRAI website at <http://interrai.org/index.php?id=7>.

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# Long-Term Care in Aging East Asia and Pacific

## 7

### Introduction

*Long-term care* (LTC) refers to the broad range of services designed to support people who are unable to perform activities of daily living (ADLs) and instrumental activities of daily living (IADLs) independently because of the deterioration of physical or cognitive functions, or both. It encompasses family-based care in the home and community as well as institutional care. It is quite distinct from health care in that while health care services seek to change the health condition (from unwell to well), LTC services seek to make the current condition (frail or unwell) more bearable.<sup>1</sup> Individuals may need LTC because of disability, chronic condition, trauma, or illness that limits their ability to carry out basic self-care or personal tasks that must be performed each day. In modern societies, concerns about LTC are a response to three trends that were discussed in previous chapters: increases in longevity and time spent

living with disability (chapter 1), erosion of family support caused by shrinking family size and changes in the patterns of family-based care for the elderly (chapter 2), and pressure on health care and other systems of support for those with disabilities (chapter 6).

Formal LTC systems in developing countries of East Asia and Pacific remain nascent, but a growing number of aging countries are grappling with what is the appropriate and sustainable role of the state in an area that has traditionally been the domain of families, communities, and the health system. Rapid aging and social change have exposed the limitations of traditional informal modes of LTC for frail, elderly people in East Asia and Pacific, as shown in chapter 2 of this report. Part of the response has been default reliance on health systems for LTC, but this “solution” tends to be costly and complicates wider health reform efforts. Proactive policy choices in the LTC domain are therefore important but require careful thought and

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This chapter is based on a background paper prepared by Aparnaa Somanathan (2015) and a literature review conducted by Harry Moroz and Naoko Miake. It is also based on a set of background papers prepared for China National Development and Reform Commission by Elena Glinskaya of the World Bank and Joshua Wiener, Zhanlian Feng, and Nan Tracy Zheng of Research Triangle International. It has also benefited from inputs from Professor John Campbell and Dewen Wang.

planning with respect to their interaction with informal care systems and existing formal health and welfare systems.

This chapter outlines the key issues and options for LTC in developing East Asian and Pacific countries. The first section describes current trends and projections for demand for LTC and LTC expenditures in the region. The second section provides an overview of LTC provision within East Asia and Pacific and elsewhere, and the third section describes financing arrangements for LTC, including arrangements for provision and types of benefits. Challenges in coordinating health care and LTC and ensuring sufficient capacity for LTC provision and quality of care are discussed in the fourth and fifth sections, respectively. Given the nascent state of formal LTC systems in most developing East Asian and Pacific economies the examples and policies cited in the chapter rely heavily on experience from richer East Asian and Pacific economies and countries in the Organisation for Economic Co-operation and Development (OECD). Furthermore, because the policy choices for LTC remain much more open at this early stage (compared to, for example, pensions and health care, as discussed in previous chapters), the recommendations are less prescriptive on what the most appropriate choices might be.

### **LTC demand and expenditures: Current trends and projections**

The proportion of the population surviving to very old ages (80 years and older) is a major driver of the demand for LTC, but it is not the only one. Demand for LTC is also greatly influenced by the prevalence of functional and cognitive limitations among the elderly as measured by trends in ADLs and IADLs and by the proportion of frail elderly in the population. As already noted in this report, the extent to which aging is associated with functional and cognitive decline and frailty among older populations is not uniform across countries. In many OECD countries, the adoption of life-course approaches to preventing the onset of noncommunicable diseases and associated chronic conditions

has resulted in longer, healthier lives, thus postponing the need for LTC.

With the proportion of the population ages 80 and above expected to double or quadruple in some East Asian and Pacific countries, the demand for LTC is expected to increase significantly. In Japan and the Republic of Korea, the proportion of the population ages 80 and older is expected to increase three- to sixfold in the next four decades (figure 7.1). Disability rates tend to increase with age, generating demand for LTC services. Figure 7.2 shows projected ADL and IADL disabilities in China, holding current disability rates constant. In East Asia and Pacific, particularly in lower-middle-income and middle-income countries, disabilities may not remain constant or even decline, as was the case in the OECD. As noted in earlier chapters, the population cohorts entering their 70s and 80s in the next two decades have been more exposed to risks related to noncommunicable diseases in middle age than previous cohorts, making them more vulnerable to disabilities in old age.

The poor and rural elderly as well as the female elderly are more likely than others to need LTC services. The prevalence of family-based care can lead to older people with care needs being missed when they have no family nearby (or their family is unable or unwilling to help), no statutory or voluntary services can fill the gap, or older people themselves cannot or choose not to ask for help (Research Base 2012). A recent study by HelpAge International using data from the World Health Surveys<sup>2</sup> looked at unmet need for LTC among old people. On average, 55 percent of elderly men and 45 percent of elderly women across the region faced care gaps. Figure 7.3 shows that the care gaps are greater for the rural elderly, the female elderly, and the poor in some of the poorer East Asian and Pacific countries.

Predicting growth in demand for LTC in East Asia and Pacific is complicated because the region's LTC is largely informal. The level of unmet demand for LTC is presumed to be very high. Where it exists, institutional care caters to a relatively small share of

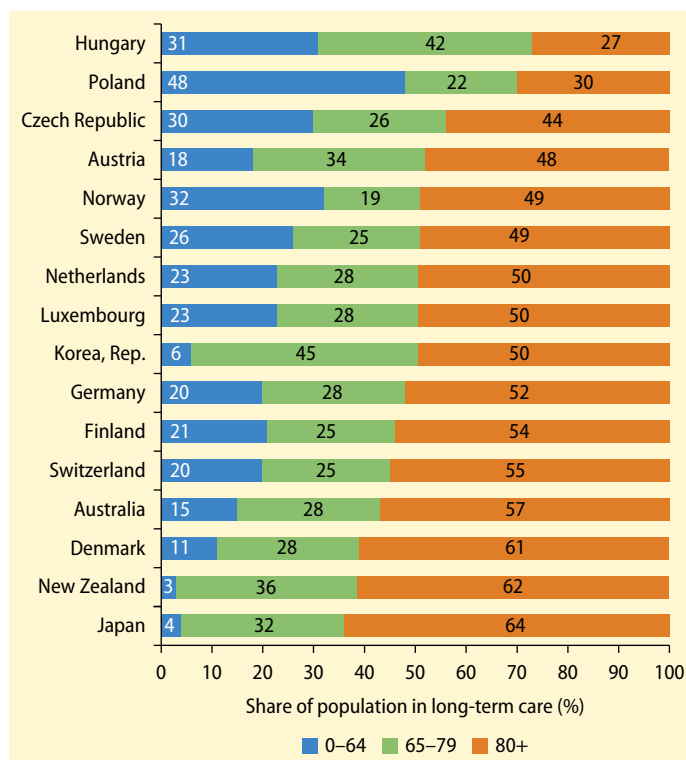
the population. The relative underprovision of LTC services at present, combined with the prospect of an unhealthy population bulge entering old age with greater dependency and disability than current elderly cohorts, has created a sense of urgency among East Asian and Pacific policy makers about the need to develop LTC systems.

As with health care, LTC expenditures are driven by both demographic and non-demographic factors. The demographic driver is related to the number of dependent people in the population, which depends on the evolution of life expectancy and health expenditure. The non-demographic drivers are related to income growth and changes in demand for publicly financed LTC services. Income has a direct effect through increases in living standards (gross domestic product [GDP] per capita) and an indirect effect through changes in relative productivity, or Baumol effects. Because the LTC sector is highly labor intensive, room for productivity gains is more limited than elsewhere in the economy. With equalization of wages across sectors, the relative price of LTC vis-à-vis other goods and services in the economy tends to rise as aggregate productivity and GDP per capita increase. With demand being price-inelastic, the share of LTC expenditure in GDP would tend to increase over time. Given the importance of home production of LTC services, the demand for publicly financed LTC depends on developments in formal labor force participation (De la Maisonnette and Martins 2013).

In 2010, OECD countries allocated an average of 1.56 percent of GDP to public spending on LTC, with private spending on LTC absorbing another 0.67 percent of GDP. Figure 7.4, panel a, shows total LTC expenditures in OECD countries. Although still relatively low, LTC expenditure—particularly public LTC spending—has shown a faster upward trend in per capita terms than health care spending, with an annual average growth of over 9 percent across 25 OECD countries, compared with 4 percent for total public expenditure on health (figure 7.4, panel b). In Korea, the dramatic increase in public LTC expenditures followed the introduction of

**FIGURE 7.1 Long-term care users in OECD countries are expected to increase with the aging population**

*Proportion of total long-term care users by age, 2009*

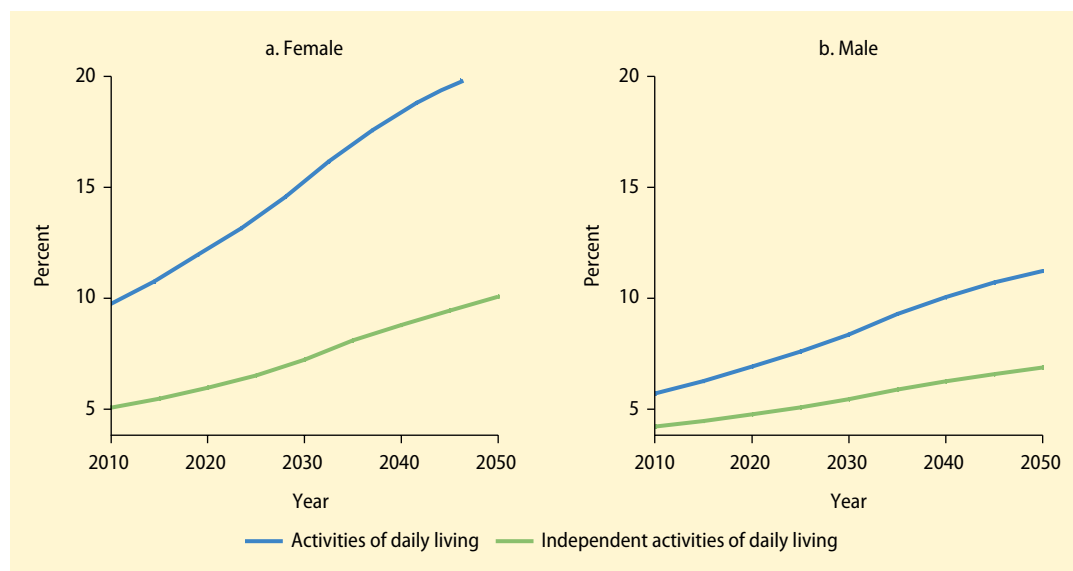
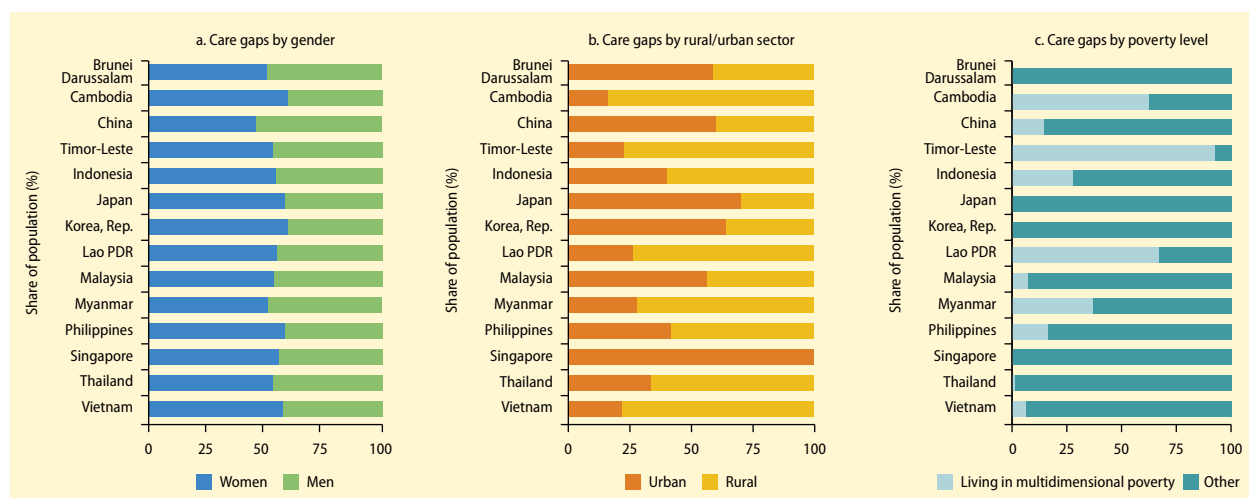


Sources: OECD Health Statistics 2012 data (<http://dx.doi.org/10.1787/health-data-en>), augmented with additional Australian and Swedish data.

Note: OECD = Organisation for Economic Co-operation and Development.

LTC insurance in 2008. This trend is expected to continue.<sup>3</sup>

OECD projections of LTC expenditures from 2010 to 2060 show that demographic changes are not likely to be the most important determinants of future public LTC expenditures. The projections included all OECD countries and Brazil, China, India, Indonesia, and the Russian Federation. Because the cost of helping one person with ADL or IADL limitations should be more or less the same, irrespective of age, the pure age effect has only a moderate impact on spending. The OECD model also assumes “healthy aging,” which further mitigates the age effect. As with projections of public health expenditures, non-demographic factors account for the largest share of the increase.

**FIGURE 7.2** In China, ADL and IADL disabilities may increase rather than decline as in OECD countries*Projections of ADL and IADL disabilities by gender in China**Sources: Giles et al. 2015; UN 2013.**Note: ADL = activity of daily living; IADL = instrumental activity of daily living; OECD = Organisation for Economic Co-operation and Development. Share of (people have ADL or IADL disabilities) in (each gender group) × share of (people in each gender group in each year).***FIGURE 7.3** Care gaps are greater for the rural elderly, the female elderly, and those living in poverty in East Asian and Pacific countries*Percent of total population with unmet care needs by gender, rural/urban location, and poverty status, latest available year, 2000s**Source: Research Base 2012.*

Under a cost-pressure scenario that assumes little or no improvement in cost containment, the ratio of public LTC expenditure to GDP is projected to increase by 1.4 percentage points to reach 2.1 percent

of GDP by 2060. For non-OECD countries, the increase in LTC spending is projected to be, on average, broadly the same as that experienced by OECD countries but starting from a much lower level (0.1 percent in China

and Indonesia). Differences in the initial level of female labor force participation rates as well as policies in place also explain the differences across countries.

The analysis of LTC expenditures and projections for OECD countries provides important lessons for the non-OECD countries in East Asia and Pacific, where LTC remains a gray economy that is largely unquantified. First, reducing levels of severe disability combined with a scenario of healthy aging can lead to better containment of LTC costs, because older people remain at home for longer with less expensive care needs. Second, a degree of path dependence exists in how LTC systems develop, which can serve to drive up costs well into the future or contain them. Responding to LTC needs with investment in LTC institutions rather than more holistic systems based in home, community, and institutional settings may lock countries into a high-cost system that is hard to restructure or shrink later. Countries such as Japan provide useful lessons on this scenario.

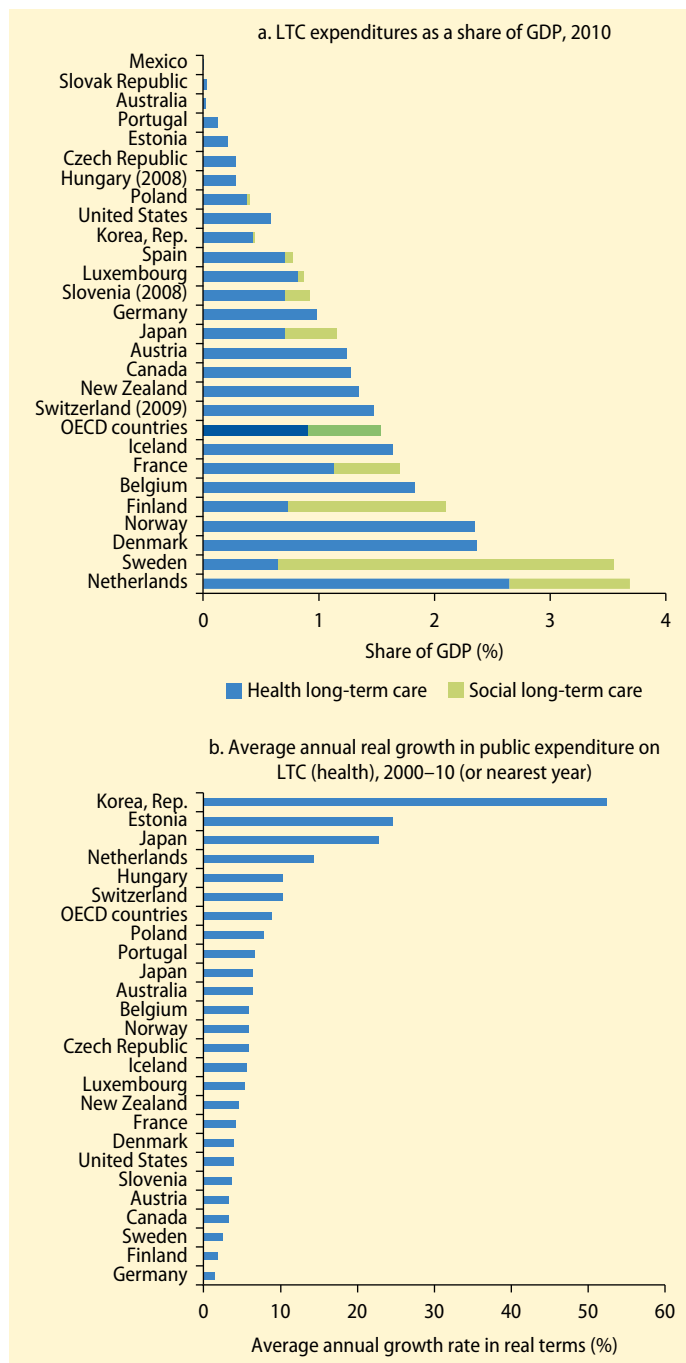
## Providing LTC

LTC is provided in three broadly defined settings—home, community, and institutions—and includes both health and social care services. Social care services include assistance with performing ADLs and IADLs as well as social support. Figure 7.5 illustrates who requires LTC and what types of services are available. East Asian and Pacific economies that have already established formal LTC systems—or key elements—are China; Japan; Korea; Singapore; Taiwan, China; and Thailand. In East Asia and Pacific more broadly, LTC is delivered informally by family members. The majority of informal caregivers, both within and outside the household, are women who are informally employed. Many informal caregivers are themselves older people.

Across OECD countries and elsewhere, institutional care has tended to dominate formal (that is, paid) LTC provision, despite research and polls invariably showing that the majority of older people with LTC needs

**FIGURE 7.4 Long-term care expenditures as a share of GDP are relatively low but growing faster than health expenditures**

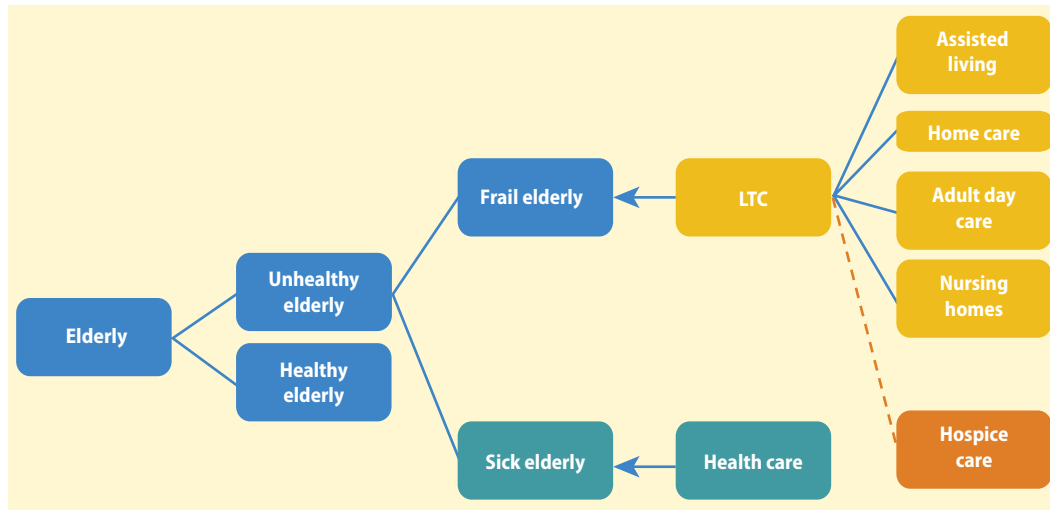
*Public LTC expenditures as a share of GDP, 2010, and average annual real growth in public LTC expenditure, 2000–10*



Sources: OECD 2013, using data from Colombo et al. 2011.

Note: Based on the definition in the 2012 Joint Health Accounts Questionnaire of the System of Health Accounts, long-term care (LTC) expenditure comprises long-term (health) care and social services of long-term care.

**FIGURE 7.5** Long-term care services include both social and health care provided in a variety of settings  
Types of LTC



Note: LTC = long-term care.

prefer services in their homes or community-based settings (Colombo et al. 2011; Keenan 2010). Home- or community-based services are also considerably more cost-effective. These preferences appear to be universal, regardless of cultural differences.

In the United States, publicly financed LTC has been shifting away from nursing home care and toward home- and community-based services over the past several decades, a process known as *rebalancing* (Feng, Fennell, et al. 2011; Wiener, Anderson, and Brown 2009). Currently, home- and community-based services account for nearly half of total Medicaid LTC expenditures (including spending for people with intellectual and developmental disabilities), up from just 20 percent in 1995 (Kaiser Family Foundation 2013). Health reforms under the Affordable Care Act of 2010 aim to further expand home- and community-based services and to accelerate the pace of rebalancing. Although progress has been made, the bulk of total spending is still for institutional care.

In Japan, the predominance of institution-based LTC is at odds with family ideology, which is thought to make families reluctant to put aging parents in an institution

(Campbell 2014). Of Japan's elderly (ages 65 and over) population, 4.7 percent live in publicly supported institutions, a higher proportion than in many developed nations. The reason is historical and political: in the early 1970s, the Japanese government reduced co-payments for medical care from 30 percent or 50 percent to zero for those over 70 years of age in response to political pressure. The result over several years was a flood of older people into hospitals, many newly built to meet this demand. The problem of these "social admissions" into hospitals, with little or no medical justification, has plagued governments ever since: 24-hour institutional care is perceived as attractive and normal, a perception that once ingrained, is hard to remove (Campbell 2014).

Similarly, the initial heavy reliance on LTC hospitals in Korea to meet the population's LTC needs has become an entrenched pattern of care behavior now. As described in box 7.1, LTC hospitals and LTC facilities compete directly for LTC patients, even though the LTC insurance scheme creates some (albeit weak) incentives to move LTC patients to LTC facilities. In addition, the introduction of LTC insurance was followed

### BOX 7.1 LTC hospitals and LTC facilities in the Republic of Korea: In direct competition

In Korea, long-term care hospital (LTCH) services are covered by national health insurance, and long-term care facilities (LTCFs) are covered by long-term care (LTC) insurance, which was introduced in 2010. Before the introduction of LTC insurance, LTCHs were the main source of institutional care for old or disabled patients, resulting in a high rate of “social admissions.” Once patients were discharged from LTCHs, they were no longer eligible for health insurance coverage.

Ideally, the introduction of LTC insurance should have led to LTCFs taking over most of the LTC patients, leaving the more clinically complex patients to the LTCHs. As table B7.1.1 shows, expenditures per person and the out-of-pocket share of financing are lower at LTCFs.

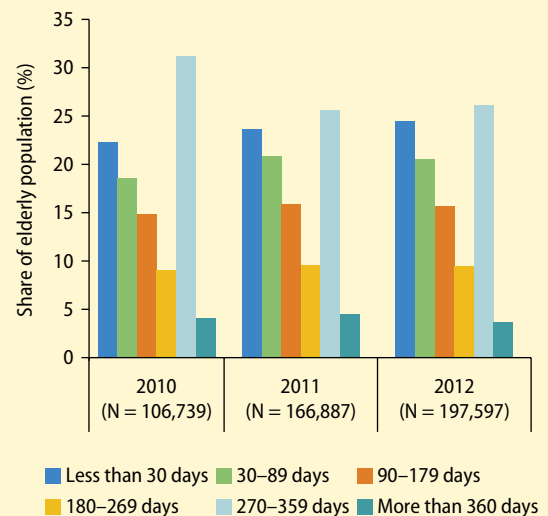
In reality, LTCFs and LTCHs have ended up competing for the same patients because of the for-profit nature of hospitals and a relative oversupply of LTCHs. As the first row of table B7.1.1 shows, the share of the elderly population in LTCHs has continued to grow, as it has in LTCFs. As figure B7.1.1 illustrates, the frequency of very long average lengths of stay (more than 180 days) at LTCHs has declined only marginally.

Clearly, the distribution of patients as measured by resource utilization groups can be rationalized further in Korea. Table B7.1.2 compares the share of patients by resource utilization groups in Korea and Ontario, Canada, for comparable LTCHs and LTCFs. In Ontario, the LTCH equivalents take most of the clinically complex cases or those requiring specialist

rehabilitative care services, whereas the LTCFs take the less clinically demanding patients requiring support with physical and cognitive limitations. By comparison, in Korea, no clear distinction exists between patients in LTCHs and LTCFs.

**FIGURE B7.1.1** Average length of stay in long-term care hospitals in the Republic of Korea has declined only marginally

*Length of stay in long-term care hospitals, 2010–12*



Source: Kim, Jung, and Kwon, forthcoming.

**TABLE B7.1.1** Comparison of LTCHs and LTCFs in the Republic of Korea

Characteristic	LTCHs			LTCFs		
	2010	2011	2012	2010	2011	2012
Percent of elderly population (65 and older) in hospital	2.0	3.0	3.4	1.0	1.7	2.0
Number of days per person per year	170	158	155	258	254	222
Expenditure per person per day (₩, thousands)	65.6	69.5	71.3	43.1	42.5	43.2
Expenditure per person per year (₩, thousands)	11,190	10,824	11,005	11,174	10,905	9,721
Out-of-pocket payment (₩, thousands)	2,171	2,101	2,155	1,412	1,493	1,363
Share of total expenditures (%)	19.4	19.4	19.6	12.6	13.7	14.0
Payment by public insurance (₩, thousands)	9,019	8,723	8,850	9,762	9,413	8,358
Share of total expenditures (%)	80.6	80.6	80.4	87.3	86.3	86.0

Source: Kim, Jung, and Kwon, forthcoming.

Note: LTCF = long-term care facility; LTCH = long-term care hospital.

*box continues next page*



### BOX 7.1 Long-term care hospitals and long-term care facilities in the Republic of Korea: In direct competition (*continued*)

**TABLE B7.1.2** Distribution of resource utilization groups in the Republic of Korea and Ontario by type of institution

Resource utilization group	LTCH (%)		LTCF (%)	
	Korea, Rep.	Ontario	Korea, Rep.	Ontario
	( <i>n</i> = 1,364)	( <i>n</i> = 14,600)	( <i>n</i> = 1,472)	( <i>n</i> = 90,115)
Rehabilitation	44.20	53.90	19.77	15.00
Extensive special care	5.45	12.40	1.36	1.60
Special care	2.68	11.50	2.92	6.00
Clinically complex	13.35	16.70	11.28	16.50
Cognitive impairment	4.23	0.80	9.44	10.80
Behavior problem	1.97	0.10	4.62	2.80
Physical function	28.23	4.50	50.61	44.30

Sources: Kim, Jung, and Kwon, forthcoming; Hirdes et al. 2011.

Note: LTCF = long-term care facility; LTCH = long-term care hospital.

by a substantial increase in LTC hospitals and facilities. By 2012, Korea had 4,181 LTC facilities and 10,759 ambulatory LTC providers. Over 60 percent of the LTC residential care facilities in Korea cater to 30 or fewer residents, making them too small to achieve economies of scale (Kwon 2014).

Japan's and Korea's experiences are quite pertinent for other countries in East Asia and Pacific, where a certain degree of pressure exists to expand institutional care despite filial piety-driven family ideologies and cultural preferences to remain at home. For instance, in China, older people prefer receiving LTC at home or in their communities (*Shanghai Daily* 2013; Xinhua 2014). The government's overarching policy framework for a three-tiered LTC system aptly emphasizes home- and community-based services. However, current policies and resource allocation patterns incentivize institutional care more than home- and community-based services (Feng et al. 2012).

East Asian and Pacific policy makers need to use policy instruments at their disposal to rebalance the mix of services as early as possible and thus avoid a bias for an institutional setting in the development of LTC systems. Institutional solutions to LTC are

more popular among governments and local authorities because building facilities and beds is easier and yields more tangible and visible results than providing and managing services in homes and communities. Application of appropriate policy instruments (including tax exemption, subsidies, and other financial incentives) should be consistent with the high-level policy decisions to build a three-team system of social services for the aged, with home-based family care as its bedrock, supported by community-based care and underpinned by institutional care. Both preferences and high-level decisions clearly indicate that as far as possible, LTC should be delivered in the least restrictive settings.

A range of community-based care models exists throughout the region and could be built upon as part of the rebalancing process (Research Base 2012). Singapore Programme for Integrated Care for the Elderly (SPICE) centers operate integrated services but also operate in home settings as required.<sup>4</sup> Thailand has piloted a home health care scheme in 26 hospitals, targeted at older people living at home. Services include health promotion, treatment, and rehabilitation. Thailand has also piloted service models that integrate health and social care—the



Bangkok 7 Model and the Community-Based Integrated Services of Health Care and Social Welfare for Thai Older Persons—that involve collaboration among local authorities, volunteers, and older people. The ROK–Association of Southeast Asian Nations (ASEAN) Home Care Programme, supported by HelpAge International, builds on the success of a home care model involving volunteers in Korea and is the most prevalent one in the region, having been adopted in all ASEAN countries. Community groups and networks and older people’s groups operate or are planned in Brunei Darussalam, Japan, and Thailand, offering support networks, health information dissemination, and fitness activities. In all these initiatives, the role of community-based organizations is vital, in many cases supported by older people’s associations as providers, trainers, facilitators, and advocates. In 2012, for example, 410,000 older people’s associations existed across the region, according to the National Commission on Aging, and more than 23,000 exist in Thailand under the Senior Citizens Council of Thailand.<sup>5</sup>

Examining pilots in several Chinese cities to develop comprehensive community-based care services is also useful. The Chinese government is implementing pilots in 42 cities (including Beijing, Chengdu, Hangzhou, and Shanghai) to provide comprehensive care services with a focus on innovation and applicability. Key elements of the pilot programs are establishing or strengthening community care centers to provide comprehensive services; conducting ability and needs analysis; purchasing services from the market or through service vouchers; using management information systems and information communication technology for monitoring and evaluation, quality control, and management; and encouraging involvement of volunteers in the provision of elderly care services.

A further distinctive feature of LTC provision in East Asia and Pacific is the emergence of state-supported informal caring arrangements. The most notable example is the Thai scheme for informal carers in rural areas, which pays a monthly stipend equal to

about US\$20 to community-based carers who receive minimal training in supporting others in ADLs. Anecdotal evidence suggests that carers are often younger elderly people who have time and are likely to be more sensitized to the needs of older elderly. This program was nationally funded in the initial years, with the intention to shift financing to subnational authorities over time. Perhaps even more innovative is the growth of “time banks” in China with support from local authorities in cities such as Hangzhou. Under these schemes, younger elderly provide home- and community-based support to other elderly people in need of care and in return generate a “time credit” that compensates the caregivers with equivalent care time when they reach the stage of needing care.

In most OECD countries, provision of LTC services is largely the responsibility of the private sector, although the mix of for-profit and nonprofit services varies. Notable exceptions to the dominance of private provision are the Nordic countries, where local municipalities provide a substantial share of services directly. In the United States, approximately 69 percent of all nursing homes are for profit, 25 percent are nonprofit, and only 6 percent are government run (CMS 2012). Among residential care facilities (for example, assisted-living facilities and board-and-care homes) serving relatively less disabled elders than nursing homes, more than 82 percent are private and for profit. In England in the early 1980s, the majority of care-home providers were publicly owned, and community-based services were limited. Today, however, the overwhelming majority of adult social care service providers are in the private sector (Malley et al. 2014). Private but nonprofit providers play a larger role in some countries, such as Germany and Australia, with faith-based nonprofits playing a significant role in the latter.

The mix of for-profit and nonprofit services also varies across East Asia and Pacific. Japan has a mixed model: for home- and community-based services, for-profit companies compete with established social service organizations and other nonprofits, while for-profit organizations are excluded from

the institutional sector that provides 24-hour care. Under LTC insurance, institutions in principle compete for clients, but in reality, high demand plus government restrictions on building new facilities has created waiting lists instead (Campbell 2014). Korea is an interesting intermediate case with respect to LTC service provision. In principle, private LTC providers are nonprofit, and the health law does not allow for-profit entities to own health care or LTC entities. However, nonprofit providers, which are owned by health care professionals or nonprofit foundations, often behave like for-profit entities in practice, with the health professionals who own establishments as residual claimants on profits. For example, Samsung and Hyundai have hospitals, but they are owned by nonprofit foundations established by the conglomerates (Jung et al. 2014).

In developing East Asia and Pacific more generally, formal or paid LTC services are still at a very early stage of development. Traditionally, most countries have had a small number of social welfare institutions run by the state or local governments that served childless elders, orphans, and people with mental illnesses. As the demand for LTC services increases, both state and private sector provision are growing rapidly. Chinese policy makers have recognized that the state is no longer able to meet pressing needs without enlisting the private sector, and they have issued a series of national policy directives over the past decade to speed up private sector development of social services for the aged. These policy documents promote preferential policy treatments such as tax exemptions, government subsidies for new and existing beds, land appropriation or leasing for new construction, and reduced rates for utilities. The policy document on aged care issued by the State Council in 2013 clearly signals that major reforms are under way to further privatize the management of publicly built senior care facilities.<sup>6</sup>

As service provision gravitates toward the private sector, concerns about quality of care will emerge, as happened in the OECD, which calls for a stronger stewardship role by the state. In provision of LTC services, the state

has an important role to play in facilitating and supporting self-care and family care, safeguarding individuals from abuse, and guaranteeing quality and safety while encouraging cost containment. Simply setting basic consumer standards is often insufficient in a sector where market forces do not ensure quality and safety and where older people and families are disempowered consumers. The role of the state is therefore vital to safeguard quality and safety, not just through establishing minimum standards for care but also through providing information and grievance mechanisms, training, setting up professional standards, carrying out inspections, and enforcing standards. In Japan, instead of simply subsidizing or encouraging private provision, the government guides the program in the interests of national coverage, equity and fairness, high quality, and efficiency in particular. As has long been evident in Japan's health care field, a strong public role is crucial for keeping down expenditures (Campbell 2014).

## Financing LTC

Informal LTC provided by family members constitutes the bulk of LTC consumed and is associated with significant uncompensated costs in almost all countries in the world. In the United States, 87 percent of the 12 million people who need LTC receive it from unpaid family caregivers, with the annual economic value of unpaid care estimated at US\$450 billion in 2009, which exceeded the total reported LTC expenditure for paid care of US\$357 billion in 2011 (Kaiser Family Foundation 2013). Although provision of LTC by family members has significant negative impacts on their welfare (Van den Berg, Fiebig, and Hall 2014), formal LTC services are expensive and beyond the means of most families. Across the OECD, private LTC insurance is rarely purchased voluntarily and is affordable only to a small number of families (Colombo et al. 2011).

Acknowledging the challenges in financing LTC, governments in many countries have stepped in to fill the void by developing publicly supported LTC services to complement

informal care. In almost all developed countries, the government typically pays most or a substantial share of total LTC costs for eligible recipients. For this reason, in most countries, much of the policy discussion revolves around public financing of LTC services. In non-OECD East Asian and Pacific countries, public financing for LTC is minimal, but policy makers are considering the introduction of LTC financing schemes.

Broadly, the approaches to public financing of LTC can be classified according to the scope of entitlement to LTC benefits (universal vs. means tested), the structure of the service delivery system at national and subnational levels, and the types of services and benefits. These approaches vary greatly across OECD countries. This section assesses the different types of financing systems in OECD countries to draw lessons for East Asia and Pacific.

### Scope of entitlement to LTC benefits

In those countries characterized as having universal coverage within a single program, LTC coverage is provided through a single system.

The philosophical premise in these systems is that the government should take the lead in ensuring that all people with disabilities, regardless of financial status, should be eligible for the LTC services they need. Social solidarity is highly valued, and the right to LTC is viewed similarly to the right to medical care. This view is reflected in the public LTC insurance models in Germany, Japan, Korea, Luxembourg, and the Netherlands, and in the personal care and nursing care through health coverage in Belgium (Colombo et al. 2011; Wiener 2011). In Germany, for example, the primary source of financing is through a universal social insurance program for LTC that provides nursing home and home care benefits for people of all ages with disabilities (Campbell, Ikegami, and Gibson 2010; Cuellar and Wiener 2000; Gibson and Redfoot 2007). The program is administered by sickness funds for 70 million Germans, and private health insurers cover an additional 10 million, mostly upper-income individuals. Table 7.1 describes the key features of universal LTC insurance programs in Japan, Korea, and Taiwan, China, which share

**TABLE 7.1** Features of long-term care insurance in Japan, the Republic of Korea, and Taiwan, China

Feature	Japan	Korea, Rep.	Taiwan, China
<i>Year introduced</i>	2000	2008	2016 (planned)
<i>Premium contributors</i>	All people ages 40 and older	All people	All people
<i>Sources of financing</i>			
Government subsidy	45%	20%	90%
Premium	45%	60–65%	
Co-payment	10%	15–20%	10% (poor are exempt)
<i>Eligibility</i>	Ages 65 and older Ages 40–64 with mental or physical disability	Ages 65 and older All ages with age-related conditions	All ages with disability or age-related conditions
<i>Service benefits</i>			
Home care	Yes	Yes	Yes
Community-based care	Yes	No	Yes
Nursing care	No	Yes	No
Institutional services	Yes	No	Yes
Cash benefits	No	Only exceptional cases	Yes for family members and home help
<i>Management</i>	Municipal government but with uniform fee schedule	Under national health insurance but financed independently	Under national health insurance but financed independently

Source: Lu 2014.

many similarities. In all three cases, financing is shared by governments and households.

In those countries characterized as having means-tested safety-net schemes, strict income or asset tests are used to set financial thresholds for eligibility for publicly funded LTC services and benefits targeting the needy. Such schemes exist in England, New Zealand, the United States, and more recently Singapore.<sup>7</sup> The philosophical premise in these countries is that the primary responsibility for care of older people and younger persons with disabilities rests with individuals and their families, and the government should act only as a payer of last resort for those unable to provide for themselves. The means-tested programs thus limit public benefits to people who are poor or who become poor because of the high costs of LTC and medical care. This system results in inefficient use of personal and state resources and inhibits personal savings.

In between these two relatively clear-cut schemes are mixed systems in other OECD countries. In these systems, LTC coverage is provided through a mix of different universal programs and benefits or a mix of universal and means-tested LTC entitlements.

### **Structure of the service delivery system**

A key issue in the design of LTC systems is the level of government responsible for financing and delivery. Many developed countries, including Canada, the Netherlands, Sweden, the United Kingdom, and the United States, rely heavily on subnational governments to design and administer their LTC systems, albeit often with substantial policy guidance from the national government. For example, Sweden devolves almost all responsibility for financing, organization, and administration of LTC to municipalities, even though it is a small country with fewer than 10 million people (SALAR 2007).

Advocates for devolution make three arguments in favor of assigning responsibility for LTC to smaller geographic governmental units (Wiener 1996). First, states, provinces, and municipalities are heavily involved in a variety of social services in many countries.

Thus, a local approach can establish important links between LTC and other services often needed by people with disabilities. Second, LTC is an intensely personal issue involving decisions about how consumers want to live their lives. Thus, the planning and delivery of services can be influenced by local circumstances, norms, and values as well as by the local preferences of the population with disabilities, their caregivers, and providers. Finally, because subnational governments are less driven to routinize their decision-making process and because individual cases loom larger in the policy process, locally administered programs are arguably less rigid and bureaucratic than centrally run programs.

At the other end of the continuum are countries such as Germany and Japan, which have a more nationalized and centralized approach to LTC, although subnational governmental entities are often still involved. For example, under the LTC insurance program in Japan, 2,895 municipal governments or alliances of municipalities are the insurers, and they have a generalized responsibility to provide adequate services (Campbell and Ikegami 2000, 2003). However, because almost all aspects of the program (eligibility, most benefits, and reimbursement rates) are fixed at the national level, the ability of the municipalities to shape the program is strictly limited. Thus, although premiums are set at the municipal level, almost all financing parameters are set at the national level.

Two main arguments favor consolidation at the national level (Wiener and Tilly 2003). First, a uniform national program helps guarantee horizontal equity across geographic areas. In other words, national rules help ensure that similarly situated individuals in different geographic areas are treated similarly. In England, for example, which relies on subnational governmental units, beneficiaries often complain of a “postcode lottery” in which persons with similar needs and financial status are treated very differently because they are subject to different local authorities. In countries with insurance approaches such as Germany’s, regional variations are thought

to be unfair, and efforts are made to eliminate them (Cuellar and Wiener 2000; Wiener and Cuellar 1999). Second, developing a single national program may involve less administrative expense because program rules and systems need to be developed only once. Each subnational governmental unit need not reinvent the wheel.

### **Types of services and benefits**

In most countries, publicly supported LTC is provided in the form of in-kind services rather than cash benefits. Public payments and subsidies for LTC typically go to service providers rather than directly to care recipients. This structure is primarily driven by concerns over the misuse of or lack of control over cash benefits or by concerns over potential coercion of female family members to become LTC providers and forgo market opportunities. Japan, for instance, operates a services-only model.

However, demand for cash allowances to LTC recipients or family caregivers is increasing in a number of OECD countries (such as Eastern European countries, England, Germany, Italy, and the Netherlands) to enhance consumer choice and flexibility. In the United States, several recent policy initiatives such as the Medicaid Cash and Counseling Program aim to promote participant-directed personal assistance services for frail older adults with disabilities and other people with disabilities in the Medicaid programs. Case by case, it can be less expensive than services: Germany offers a choice of cash and services, and even though the value of the services is about double the cash allowance at various levels of disability, most people take the cash (Campbell 2014). The proposed LTC insurance in Taiwan, China, includes both in-kind and cash benefits as a way of addressing problems of waning family support.

The disadvantages of cash allowances may outweigh the advantages, particularly for middle-income countries. Budget constraints mean the cash amounts would have to be low, insufficient to provide a decent income but perhaps enough to trap caregivers (mostly women) into a situation with

few future prospects. Furthermore, even if the costs of the allowances are low, the savings may be offset by the increased number of users (Wiener 1996, 2011). Services such as assistance with bathing are less attractive except when really needed, and demand is likely to be limited, at least for several years, in countries where traditional family caregiving is widely accepted as the norm (Campbell 2014).

Public financing for in-kind services requires the development of infrastructure for nursing homes and for community-based services (for example, home help, day care, respite care for family caregivers, and assistive devices). Nursing homes are expensive to build and operate, but because the government is likely to control capital expenditure, it can control the pace of expansion. Community care agencies do not require much new construction, but they do need trained staff and good management, which require investment. However, they too can be developed gradually. A long-run benefit is that the training and work experience will raise the quality of the female workforce.

Private LTC insurance does not play a major role in financing LTC in any country (Colombo et al. 2011). In the United States, which has had an active market in private LTC insurance since the mid-1980s, only about 12 percent of the population 65 years of age and older has any LTC insurance (almost all of which contains substantial restrictions on coverage), and it accounts for only about 7 percent of total expenditures (Frank, Cohen, and Mahoney 2013; Kaiser Family Foundation 2013). In France, which has significant market penetration, LTC insurance is integrated with health insurance, but the benefits are limited and private insurance accounts for less than 1 percent of LTC expenditures (Nadash, Doty, and Racco 2013). Private insurance in Germany is primarily offered as an alternative to the mandatory statutory sickness funds for upper-income people and government officials. In short, private health insurance is not a viable option for financing LTC for the large majority of the population.

Private out-of-pocket payments by recipients are a feature of all public LTC coverage schemes regardless of the specific financing mechanisms used (Colombo et al. 2011). Countries generally believe that individuals should be financially responsible for the costs of “normal living,” such as housing and meals. Even in universal coverage systems, services are often targeted to those with the highest care needs, and not all countries provide full and comprehensive coverage of services. Individuals and families not infrequently pay a significant share of LTC costs out of pocket, as is the case in Switzerland (60 percent), Portugal (45 percent), Spain (30 percent), and Korea (20 percent for institutional care and 15 percent for home care). In the United States, out-of-pocket and private payments accounted for 22 percent (15 percent out of pocket, 7 percent private insurance) of the total US\$357 billion in LTC spending in 2011 (Kaiser Family Foundation 2013).

Levels of public financing support and cost sharing are determined on the basis of eligibility rules. Eligibility is based on objective and uniform assessments of individuals' care needs, typically measured by the extent of physical and cognitive impairments (in addition to means testing, where it exists). Mechanisms for assessing eligibility for LTC services are discussed in a separate section below.

The structure and details of public LTC financing have large impacts on the balance between institutional and home- and community-based services, quality of care, supply and access to services, and cost containment. Without adequate financing, the need for LTC may not be translated into effective demand. That is, people may go without formal services (or rely on informal services) because they have no way to pay for them. This is already happening in China to some extent, with substantial vacancies in some high-end residential care facilities. The lack of sustainable and predictable, adequate financing serves as a deterrent to private sector investments into the industry.

For both publicly and privately provided services, the financing system largely establishes the level of resources available to provide

care, which sets a floor on the quality of care possible. Even though it is a means-tested system in which not everyone qualifies for government financial support, in the United States, the government pays for approximately three-quarters of nursing home residents. In addition, for private providers, threatening to terminate participation in the government financing program is the principal enforcement mechanism for addressing poor quality of care (AHCA 2013; Wiener et al. 2007).

The degree of redistribution achieved by public financing schemes is a function of how funds are raised and how they are spent. LTC financing systems redistribute resources from people without disabilities to people with disabilities and potentially from younger (less likely to be disabled), working people to older, retired people. Depending on the system, resources can also be redistributed from higher-income to lower-income people. Although disability affects people of all ages and income or wealth levels, people with disabilities disproportionately have lower incomes and less wealth than people without disabilities. For example, in 2001 in the United States, the median income of older people with no disabilities was about twice that of older people with severe disabilities, while the median total household net worth for people with no disabilities was four times that of people with severe disabilities (Johnson and Wiener 2006). As a result, even universal coverage financing systems serve a disproportionately low-income population.

Finally, cost containment goals can be affected by the structure of financing. For instance, the 2000 initiation of LTC insurance in Japan was partly aimed at imposing a more rational and efficient system for LTC. However, because the government had already been providing generous benefits to people who sometimes had relatively light needs, the government found backtracking on the earlier generosity politically impossible. In contrast, when Germany started its quite systematic program in 1995, it was providing rather low benefits to relatively few people, so it could start out with stricter eligibility rules and lower benefits (Campbell 2002).

In most East Asian and Pacific countries, the policy challenge of providing broad-based and equitable access to LTC while ensuring financial sustainability looms large with the rapid aging of their populations. The experiences of many OECD countries suggest that a broad-based, universal LTC financing system offers the most equitable coverage to people in need of LTC. For East Asian and Pacific countries with rapidly aging populations (China, Thailand, Vietnam), a targeted universalism approach, which builds on the principle of universal coverage while targeting benefits for individuals with relatively higher care needs, may be desirable. For younger countries, the community-based approaches being piloted in countries such as Cambodia and Myanmar with support from HelpAge International seem promising in leveraging nonfinancial inputs from communities and families that are crucial to achieving financial viability even with support from governments or development partners. Approaches such as the time banks in some cities of China, which rely primarily on the convening power of government or local

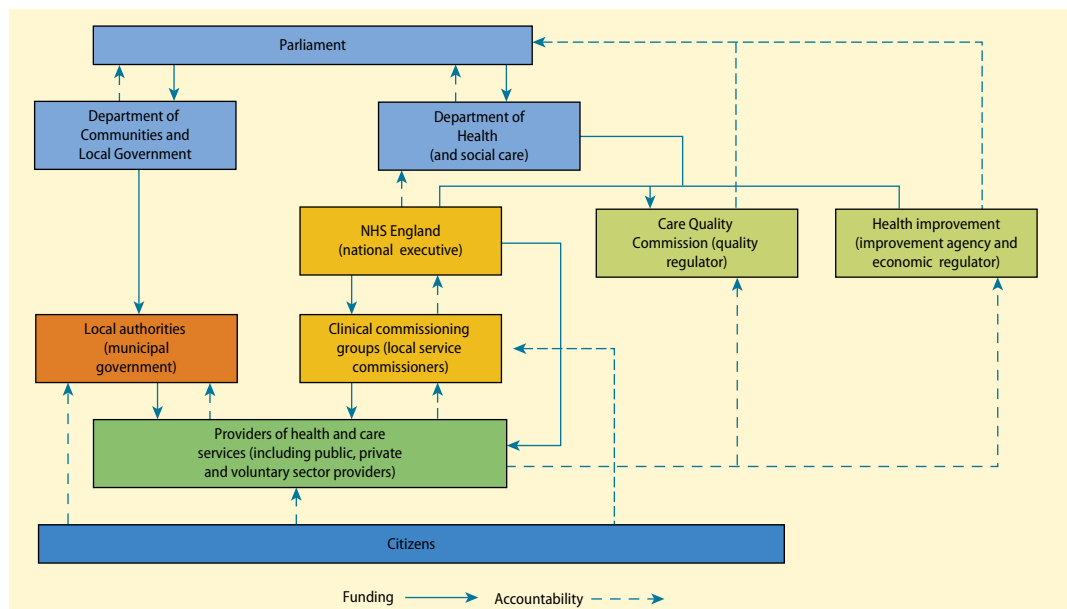
communities and relatively less on financial support, also seem worth further exploration.

### Coordinating LTC services

The lack of integration of services across different programs or settings, both within LTC and across medical care and LTC, is a common challenge across countries. Part of this problem is rooted in the common split between health care and social care. In most countries, the LTC system is separate from the health care system (a notable exception is Belgium), even though the lines are not always clear-cut. Bridging this gap has proved difficult because of the multiple providers involved in service delivery, the complex financing arrangements, and differences in working cultures (as discussed below).

Many different actors and levels of governance are involved in service delivery, contributing to fragmentation of services between the health and LTC sectors. Figure 7.6 illustrates the problem of fragmentation in England, where multiple agencies are involved in the

**FIGURE 7.6** The health and long-term care systems in England are complex and riddled with perverse incentives



Source: Ruthe Isden, personal communication, October 2015.

financing and delivery of health care and LTC. The fragmentation is greater in those countries where the acute care sector dominates, the primary care sector is weak, and community services are limited. Given that a move toward greater coordination of care and increased care of the elderly at home or in communities is likely to result in decreased demand for hospital beds, a dominant acute care sector can indeed be an impediment to reform (OECD 2013).

Moreover, the financing arrangements for health and LTC services are highly complex, with multiple sources of financing associated with some indirect spillover effects. In Germany, Japan, and Korea, public LTC insurance operates separately from the health insurance system. As described in box 7.1, LTC hospitals and facilities in Korea, financed by national health insurance and LTC insurance, respectively, are in direct competition with each other. In the United States, the federal Medicare program (which provides health insurance—including hospital insurance, medical insurance, and prescription drug coverage—for people ages 65 and older as well as younger people with certain disabilities) covers limited postacute care by nursing homes and home health agencies, whereas Medicaid (a federal-state jointly funded, means-tested insurance program for low-income people) covers a broad array of LTC services, although coverage varies by state (Grabowski 2007, 2012). In a setting with two or more bodies responsible for funding a service, an incentive exists to pass on the costs to the other (Hofmarcher, Oxley, and Rusticelli 2007). It also increases the cost to the individuals and to the public purse. In the United States, these concerns have led to the creation of a new Medicare-Medicaid Coordination Office under the Affordable Care Act, with the express purpose of aligning the two programs.

Differences in working cultures and service providers' roles in the two sectors have also hindered coordination between health care and LTC in the OECD. Health care providers, particularly doctors, have traditionally been seen as holding a higher status

than social service employees. Differences in interests, motivations, and behaviors at the provider level can lead to potential inefficiencies or failures in service delivery. The workload of service providers is also likely to increase, at least temporarily, as a result of integrating care services. Learning new referral and information systems and adapting to new integrated ways of working can take time away from handling their existing workload (Maslin-Prothero and Bennion 2010).

In East Asia and Pacific, health care and LTC are completely separate from each other. In China, for instance, relatively few senior care facilities have medical or professional nursing staff available (Feng, Zhan, et al. 2011). In most facilities, residents are responsible for providing their own medications (although facility staff often help with storing and administering them) and medical care, which may be covered by various health insurance programs. In emergency situations that warrant hospitalization of a resident, a typical response by the facility is to call a family member who will take the resident to the hospital, which could lead to problems in care transition and delays in transfer. The situation is compounded by the lack of portability of health insurance between regions in countries such as China and Vietnam.

Bridging the gap between health care and LTC holds promise in two ways: by reducing the cost of acute and institutional care and by improving service users' satisfaction by enabling them to stay in their community (OECD 2013). Integrated care for the elderly has been defined as "a coherent set of products and services, delivered by collaborating local and regional health care agencies through securing liaison or links within and between the health and social care systems" (Hardy et al. 1999). It implies providing a comprehensive array of preventive, primary, acute, and LTC services, coordinated and provided by an interdisciplinary team of professionals in a community-based center and in participants' homes, helping participants delay or avoid long-term nursing home care. Coordinated care experiments in Australia, Japan, and the



United States include efforts to align providers' and users' incentives for more efficient and quality-enhancing patterns of care. In time, they are likely to provide useful models that can be built upon in East Asian and Pacific countries.

In some cases, eligibility for LTC services is determined by caseworkers employed (or contracted) by municipal governments. These caseworkers evaluate the physical and mental condition of the potential clients plus their income and assets and the extent to which family care is available. The caseworker draws up a personalized care plan for services to be provided by the municipality, determining the amount of benefits to be offered within the constraints of the municipal budget. An advantage of this system is that it allows the benefits to be tailored flexibly to individual situations; moreover, if a means test for income or assets is included, public resources do not go to people who could afford care on their own. A disadvantage of this system is that differences in the financial situations among municipalities may result in regional variations in eligibility criteria and benefit levels that may be seen as unfair—or even as a geographic lottery (Campbell 2014).

The alternative is to decide on eligibility and degree of disability through a national standardized instrument. The test usually measures how well applicants can perform the standard ADLs. Japan uses a 74-item questionnaire that is administered by a moderately trained public servant in a home visit of an hour or so. The numerical results are analyzed with a statistical algorithm to sort people into eight categories: independent; two grades of “needs support” at a relatively low level; and five grades of “needs care.” The computer's decision is reviewed by a local committee, which also looks at a brief report on the applicant's medical condition from the family physician and may move the grade up or down one level. Regardless of which process is adopted, the key is to ensure that no one involved in making decisions about eligibility stands to gain from it and that the system has legitimacy in the eyes of the public.

## Ensuring capacity and quality for LTC provision

LTC is labor intensive, and the majority of the LTC workforce consists of front-line workers. In all countries, women—typically in their middle ages—make up the vast majority of the LTC workforce. The front-line workers include certified nurses' aides, home health care aides, and home and personal care workers who provide hands-on help for basic ADLs, such as eating, bathing, dressing, and using the toilet. In most countries, these are low-skilled workers with minimal training requirements. In the United States, federal law requires a minimum 75 hours of training or passing a certification exam for a certified nurses' aide, although some states have additional requirements.

At the higher end of the skill set, the LTC workforce includes a group of licensed health professionals. Such professionals include registered nurses, licensed practical and vocational nurses, social workers, physical therapists, occupational therapists, physician assistants and aides, and LTC facility administrators who often assume supervising or managerial responsibilities rather than providing direct, hands-on care (Stone and Harahan 2010). In only a few countries, such as the Netherlands, are physicians directly involved in the provision of LTC.

Many countries face a chronic shortage of LTC workers. Recruiting and retaining direct-care workers in LTC settings is particularly challenging because of a multiplicity of factors, such as low pay, low job prestige, few fringe benefits, and lack of career paths. As a result, these positions are often viewed as dead-end jobs characterized by high turnover, low retention, and job dissatisfaction. These workforce challenges are common across OECD countries, and policy efforts aimed to address them abound (Colombo et al. 2011). Unfortunately, few successes exist thus far that can be readily shared and replicated in different countries.

In this situation, high-income countries such as Australia, Austria, Italy, and Singapore are increasingly relying on migrant

workers from less-developed nations to provide care. In most cases, the immigrant workers are untrained women, often with dubious immigration status, who live in the household to provide full-time care for a frail elder and to cook and clean for the family as well. As their numbers grow, challenges emerge: quality of care, issues of fairness and exploitation, stunting of the development of more professional LTC, and demands for heavy and growing government subsidies of the practice. Some high-income nations have tried to regularize recruitment, training, and employment conditions of migrant caregivers but without much success so far. Japan is unusual in the extent to which it relies on trained care workers employed by agencies in providing LTC (Campbell 2014). At present, a program is being developed in Japan to bring and train LTC workers from the Philippines and other Southeast Asian countries.

The lack of a qualified and professional workforce in LTC is a pressing issue across East Asia and Pacific. In China, for instance, the majority of direct-care workers in senior care facilities are inadequately trained and poorly paid, with few having received any professional training (Feng et al. 2014). In the emerging home- and community-based service sector, the workforce problems of recruitment and training are even worse. Inadequate training for direct-care workers is not the only impediment to high-quality services: professional clinical and management staff are also needed to ensure a transition to a modern, information-based LTC delivery system. Programs have been introduced in Taiwan, China, to train informal caregivers to cope with the shortage of skilled care workers.

East Asian and Pacific policy makers—particularly in countries such as China, Thailand, and Vietnam where LTC needs are growing rapidly—should prioritize education and training initiatives to develop a professionalized LTC workforce. Currently, few educational programs exist with curricula focused on gerontological nursing, social work, and professional skills related to all

other aspects of geriatric care. Governments should play a more active role in strengthening workforce training programs in higher education or vocational schools through earmarked funding and other forms of financial inducements (for example, fellowships, scholarships, or targeted grants) similar to those provided to encourage the development of care facilities for seniors. Strengthening the domestic LTC workforce may prove futile if the same workers are attracted by better LTC work opportunities in higher-income East Asian and Pacific countries, so coordination between these programs is desirable.

To help ensure quality and standards in LTC, another priority is to address the lack of effective regulatory oversight over the booming private senior care sector as well as home- and community-based providers. In most East Asian and Pacific countries including China, little effective regulatory oversight exists for private sector LTC, partly caused by a government focus on building more services quickly to fill the supply gap, as described earlier. Existing regulations are limited, focus only on structure, and do not explicitly consider quality of care, let alone quality-of-life issues. Furthermore, the various types of home- and community-based providers, such as assisted living facilities, board-and-care homes, and adult day care services, are subject only to some basic licensure requirements and loose regulations within individual states (Mollica, Sims-Kastelein, and O’Keeffe 2007). The experiences of OECD countries suggest a commonality in regulatory oversight and quality assurance in LTC: they are more visible, rigorous, and effective in institutional care settings compared to in-home and community-based care settings.<sup>8</sup> Quality assurance for home- and community-based care is particularly challenging where public financing of such care is limited and therefore the government has little stake or incentive to strengthen regulatory oversight.

Information technology provides immense opportunities for East Asian and Pacific countries to advance rapidly in the area of regulatory oversight and quality assurance even

in their fledgling LTC systems. The experiences in other countries demonstrate that effective oversight entails building an information system to facilitate evidence-based policy making, quality assurance, and regulatory enforcement (Mor, Leone, and Maresso 2014). In the United States, all publicly certified nursing homes must report both facility- and resident-level data electronically, using a uniform annual facility inspection survey and standardized resident assessment (Stevenson and Bramson 2014). Building an information infrastructure in East Asian and Pacific countries may take time and resources, but the Internet and availability of cloud-based systems mean that countries such as China can move more quickly than was possible in the United States two decades ago (Feng et al. 2012). This process can be accelerated because the government is increasingly at risk—with significant investments of public resources in the rapidly growing senior care sector—and better positioned to wield its growing “buyer power” to make regulations work.

## Conclusion

Middle-income and lower-middle-income countries in East Asia and Pacific should consider early adoption of systematic LTC programs, ideally before the frail, elderly population becomes too large. Israel and Korea provide two examples of how early establishment of LTC systems can keep costs down.<sup>9</sup> If a comprehensive system is established before other potential solutions to the problem have evolved much, serious difficulties can be avoided (Campbell 2014). As discussed, in the face of a rapidly growing frail, elderly population with inadequate family support, local governments or charities and other welfare groups generally resort to building lots of nursing homes to house those individuals. Once institutional care becomes the norm, and if an increasing number of public or quasi-public nursing homes—or worse still, hospital owners—band together to protect their interests politically, changing course and adopting more rational programs becomes

enormously challenging. Investing early on in a three-tiered formal LTC system that puts the emphasis on home- and community-based care can avoid many of these challenges, and in the East Asian and Pacific context, it is also likely to be more culturally acceptable. An added advantage of the early establishment of a formal LTC system in middle-income nations is that training and certification programs can be built up gradually as demand expands. Whatever directions are chosen, piloting and careful evaluation seem appropriate.

Even in younger countries, which do not yet have a large frail, elderly population, initiating a good LTC system early is fiscally prudent and makes political sense. Even at an early stage in population aging, the burden of caring for the elderly is acutely felt by more and more ordinary citizens who are concerned about what will happen to their parents and ultimately themselves. The earlier an LTC system is started, the lower the cost. When the number of qualifying older people is relatively low, and traditional family supports are still working fairly well, the demand for public programs will not be very high. Moreover, when no public services had previously been available, even modest benefits will be welcomed. The government can decide later on whether coverage or benefits should be upgraded.

Initiating a good LTC system early is also good public policy. As the experience of high-income nations demonstrates, a well-designed LTC system delivers good benefits at moderate cost—a key yardstick for all public policies. Good LTC will lead to real savings in health care provision because frail older people who get good day-to-day care are less likely to get sick and less likely to relapse after being hospitalized, and LTC is inherently less costly than medical care because it uses staff with lower wages and does not lead to open-ended benefits. Moreover, if care for frail older people can be handled by a dedicated system, the health care system can focus on acute care and prevention while other social programs can concentrate on pressing needs like poverty, urban housing, and helping young people to succeed.

## Notes

1. The health component of LTC spending relates to health and nursing care for patients who need assistance on a continuing basis because of chronic impairments and reduced degree of independence and ADLs. The following items are included in the LTC health component: palliative care; long-term nursing care; personal care services (assistance with ADL restrictions); and services in support of informal (family) care. The social component of LTC includes home help (help with IADLs); residential (care) services; and other social services provided in an LTC context.
2. Data for unmet care needs were extracted from questions asked in the World Health Survey (WHS), a multicountry study, to generate comparable information on the health of adults and health systems. One strength of the WHS is the large sample sizes in participating countries. Survey findings were applied to population estimates from the UN World Population Prospects data set to create estimates of care at the national level. Eight countries in the region (Cambodia, Indonesia, Japan, Korea, Singapore, Thailand, and Timor-Leste) were not included in the WHS. Estimates for these countries were derived using data from countries in the region with similar income levels. For example, Cambodia's unmet care need was estimated by averaging the unmet care needs identified in the Lao People's Democratic Republic, Myanmar, the Philippines, and Vietnam. Therefore, estimates of prevalence and burden of care in these countries should be interpreted with caution, because the underlying data do not come from the country itself (personal communication from Meredith Wyse, HelpAge International, 2015).
3. For more information, see Colombo et al. (2011); OECD Health Statistics 2012, <http://dx.doi.org/10.1787/health-data-en>; and OECD and European Commission (2013).
4. Singapore Programme for Integrated Care for the Elderly (SPICE), <http://www.aic.sg/page.aspx?id=782> (April 30, 2013).
5. See HelpAge International (2015) on community-based social care in East and Southeast Asia.
6. Currently, almost all private sector senior care facilities in China are registered as nonprofit, nonenterprise entities, a status required to receive tax exemption and other favorable policy treatments. In actual operation, however, they tend to behave more like for-profit facilities.
7. In Singapore, the government recently introduced subsidies to lower- and middle-income individuals to help with LTC costs. Subsidies are means tested, so that families with fewer resources receive more than families that earn more. See the Ministry of Health's MediShieldLife website at [https://www.moh.gov.sg/content/moh\\_web/medishield-life/resources---faqs/healthcare-financing-in-singapore.html](https://www.moh.gov.sg/content/moh_web/medishield-life/resources---faqs/healthcare-financing-in-singapore.html). The State Council document of 2013 is titled "Opinions of the State Council on Accelerating the Development of Services for the Aged" (unofficial translation, dated September 6, 2013).
8. In the United States, for instance, nursing homes are among the most tightly regulated sectors and must comply with a set of minimum standards mandated by the federal government (Mor 2005; Stevenson and Bramson 2014).
9. As described in Asiskovitch (2013), Israel, which established the world's first LTC system in 1988 when less than 10 percent of its population was ages 65 and older, has succeeded in keeping costs down and the number in institutions very low. As described in Duk (2012), Korea established a system largely based on the Japanese model in 2008 when only 9 percent of its population was ages 65 or older, and the costs have been quite moderate.

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**Looking Ahead**

IV



# To Live Long and Prosper: Looking Ahead

## 8

### Introduction

A great deal still remains to be understood about aging in East Asia and Pacific. Given the rapid pace of aging in the region, it is not surprising that large knowledge gaps remain in understanding the process and drivers of aging, the emerging policy responses, the effects of aging on societies and economies, and the channels through which those effects occur. Around the world, aging is a phenomenon that remains inadequately studied, although the explosion of research and policy innovation in countries in the Organisation for Economic Co-operation and Development (OECD) and in Eastern Europe and Central Asia has begun to shed more light on the complex issues involved. In East Asia and Pacific, with notable exceptions such as Japan and Singapore, the knowledge gaps are even more acute. Although insights from OECD experience and research on aging are valuable, questions remain on what aspects of that experience are transferrable to the very different setting of East Asia and Pacific, where

the pace of aging, the lower income levels at which it is happening, and the differences in culture all point to a need for more research and experimentation specific to the region to guide policy development.

This chapter outlines an agenda of aging-related issues that will require close attention in East Asia and Pacific. Mirroring the issues addressed in earlier chapters, this agenda ranges from better understanding of demographic trends to the macroeconomic effects of aging, to policy change and societal responses, to the impacts at the household and individual levels. It is not comprehensive but rather identifies within the areas covered in the report where more research is needed to inform public policy development. A host of other relevant issues beyond the scope of this report will also require attention, including adjustments in urban environments to aging populations, the drivers of cognitive resilience and decline, the role of technology in promoting healthy and productive aging, the social participation of older people, and the effects of natural disasters on older people.

## Demographics

As discussed in chapter 1 of this report, demographic dynamics are inherently difficult to predict accurately, and deepening the capacity within governments and the regional research community to track actual trends will be vital. This approach will require much more frequent updating of population projections and modeling of different longevity and fertility scenarios (as the United Nations itself does with its multiple fertility scenario projections). East Asia and Pacific has witnessed a fairly consistent underestimation of the rate of fertility decline in recent decades. Apart from the historical imprecision of population estimates, developments in medicine and technology suggest that accelerated extensions in life expectancy have the potential to radically alter the notion of “old” within our lifetimes, in terms of both length of life and cognitive and physical functioning. On a more modest note, incorporating the rapidly changing educational profiles of populations in the region is an important factor that has led to lower fertility and longer life expectancy projections for many countries. This is an approach taken by, for example, the Wittgenstein Centre for Demography and Global Human Capital.<sup>1</sup>

More work is needed to understand the drivers of fertility behavior in East Asia and Pacific, including how such behavior may differ from that in other parts of the world. In contrast to some OECD countries, the experience of richer East Asian and Pacific economies suggests that important differences exist in fertility behavior that raise questions about the likelihood of future reversals in fertility. Understanding the roots of these apparent differences is vital to shaping public policy responses and predicting future demographic trends. A range of hypotheses has developed in this regard, including the persistence of traditional gender roles and responses of younger women to them, the costs and pressures of child rearing in some East Asian and Pacific societies, the degree of job security and flexibility in employment terms and conditions, and more limited immigration in some countries. Analyzing the relative importance

of these and other factors through careful sociological and quantitative research will be crucial. One potentially important piece of evidence in this regard from OECD countries is that fertility behavior in those countries in recent years is positively associated with women’s labor force participation, a reversal of the situation in the 1980s (OECD 2011). However, this reversal has not been seen in Japan and the Republic of Korea.

Whatever the evolution of demographics, adopting alternative dependency measures to better understand the real world effects of demographic, epidemiological, and behavioral change would be useful. Future dependency in East Asia and Pacific is likely to continue longer in the early stages of life and shrink at the later stages (known as the Ben-Porath effect). In East Asian and Pacific societies where informal sector workers—and even formal workers in richer economies in the region—already work well beyond age 65 and where healthy life expectancy has been steadily increasing, the traditional definition of “working age” as finishing at age 65 needs to be reexamined. Similarly, in a region where a growing number of countries have high senior secondary and rising tertiary education completion rates, assuming that the working age begins at age 15 is becoming less defensible. New dependency measures that take into account healthy life expectancy, years until death, and observed work behavior will be vital to inform public policy. They may also help mitigate negative attitudes about older people as unproductive or burdensome on society.

## Macro and fiscal issues

Assessing the effects of aging on economic growth and income distribution is a high priority for policy makers in the region and an issue with repercussions for the global economy. This is a research agenda that has already attracted much attention. However, it has sometimes divergent findings and remaining knowledge gaps that suggest a few areas for further work.

An overarching research need is to move beyond simple growth accounting projections of the interaction of aging and growth toward analysis that better reflects policy and behavioral change in response to aging. More dynamic estimations of the growth effects of aging are needed, as well as a better empirical understanding of the channels through which growth may be affected by aging (see discussion below). More fundamentally, broader definitions of societal welfare may be of particular relevance in aging societies. For example, factors such as improved healthy life expectancy and lower morbidity, falling crime rates, better working conditions for older people, and other welfare improvements may lead to improvements in quality of life even in cases where growth in gross domestic product per capita is slower.

A key factor in understanding growth dynamics in aging societies is savings behavior across the life cycle and the way it evolves in response to rapid aging and policy change. This is an area where existing research suggests that East Asia and Pacific may be distinctive, but where findings are not always consistent across countries, research methods, time, and cohorts. Even where empirical findings concur, the drivers of observed savings behavior may differ, from cultural elements such as variable bequest motives to rational financial planning in the face of low social insurance coverage and shallow financial protection. Whatever the historical patterns, changes in social insurance coverage, social attitudes to support across generations, the relative emphasis of macroeconomic policy between consumption and savings, and access to financial services and capital markets all suggest substantial possibilities for shifts in savings behavior. A related research agenda addresses the relationship between savings behavior and intermediation of household savings into capital investment.

Divergent research findings also suggest a need to understand better the effects of aging on other macroeconomic variables, including inflation and the relative returns to factors of production. With respect to inflation, research on the effect of aging has produced

divergent predictions. Some analysts predict inflationary pressures from aging as the share of people producing relative to those consuming shrinks, whereas other researchers argue that the net effect will ultimately depend on the ability of a particular cohort to influence monetary policy. Older and younger cohorts may have competing demands for inflationary or deflationary policies, which may play a key redistributive role in aging economies. If older generations have more influence on policy makers, then monetary policy will favor a low or even negative rate of inflation to protect money holdings. This area will be important to track in practice, more so given the higher reliance of older people on fixed incomes from pensions, savings, or other assets. A related question is the evolution of relative returns to factors of production in the face of aging. If labor forces shrink, this may affect the relative price of labor. There may also be potential effects on the returns to different investment instruments as forced savings through pension and old age savings vehicles influence market demand (for example, for long maturity bonds) and, over time, potentially affect the relative price of different investment instruments.

In addition, understanding the potential distributional effects of aging is an emerging priority in a region with growing concerns about inequality. The potential effects of aging on inequality may be divided into two broad groups: how aging plays out *within* population cohorts as they age and how it may affect the distribution of income *across* generations. Inequality will be driven not only by changes in the relative returns to labor, capital, and skill with population aging, but also by the pension, health insurance, and other age-related policies in place. Although rising returns to labor may benefit the young in an aging society, redistribution through pensions and access to health care may suggest that older residents are better off. The contribution of these divergent factors to overall inequality will vary according to initial conditions, in particular the relative living standards of elderly and working-age people. The role of population aging in inequality

dynamics is thus a topic that would benefit from increased attention as aging accelerates across the region.

With regard to fiscal issues, regular projections of age-related spending scenarios and improved approaches to disentangling the contribution of aging and other factors to public spending are needed. Although projecting the effects of pension, health, long-term care, and other age-related spending has matured in the richer economies of the region, it remains in its infancy in the developing countries. There is an ongoing agenda of actuarial capacity building in this regard, including education in actuarial science, development of examination and licensing procedures, codes of conduct and professional bodies, and standards of practice.

Strengthening actuarial capacity in government and the private sector in developing East Asian and Pacific countries is a priority, as is integrating such analysis systematically into public policy making (for example, by mandating regular updates of actuarial projections of pension and health insurance programs and by requiring actuarial results be included in proposals for reform of social insurance programs). Many OECD countries have a legal requirement of periodic publication of actuarial results of their social security funds—for example, an annual actuarial valuation in the U.S. Social Security Administration (over a 75-year time horizon) and five yearly (over 90 years) and three yearly actuarial reports in Japan and Canada, respectively (Hoskins 2010). More broadly, Australia is obliged every five years to publish an intergenerational report (latest edition 2015), which forecasts the effects of demographics on growth, labor force and productivity, and public finances, assuming unchanged public policies (Commonwealth of Australia Treasury 2015). It has proven to be an effective vehicle for generating public debate on the effects of fertility, longevity and aging, and migration on the economy and fiscal position. At a basic research level, more Asia-specific work is needed to understand the relative contributions of

policy choice, health technology, and aging itself to cost pressures in health and long-term care systems, particularly in light of research on China that suggests that the respective contributions seen in OECD countries may vary in rapidly urbanizing and aging countries.

## Labor markets

The importance of the labor market as a channel through which the socioeconomic effects of aging are felt is well demonstrated. Thus, gaining a deeper understanding of evolving labor market behavior across the life cycle and of the most effective policies to mitigate the effects of aging on the labor force is vital.

One area needing better evidence is the relative productivity of workers across the life cycle, as well as the factors that can affect worker productivity at older ages. In developing East Asian and Pacific countries, limited information exists on productivity across the life cycle, including how the picture may be changing as more educated cohorts of workers begin to pass through middle age. Assessing the productivity profile at the firm level based on the workforce age mix within firms is important in determining how older and younger workers can best combine their relative strengths. This approach would help inform further reforms of seniority wage systems and, more generally, optimal combinations of workers of different ages in the workplace. Related to this is assessment of workplace adjustments to enhance the productivity of older workers, an area still in need of evidence on the most cost-effective adjustments. Few studies document workplace adjustments and organizational changes designed to facilitate and encourage longer working lives in East Asia and Pacific. This is an area where studies could be a catalyst to wider adoption of such adjustments and changes and would warrant public research support.

Understanding effective practices with respect to development and retention of adult skills in middle age and beyond will be vital. This includes both on-the-job training and more structured adult learning and

would help identify market failures in the adult training market where public intervention may be warranted, as suggested by evidence from Japan and Korea in chapter 4 of this report. With regard to life-long learning outside the workplace, this is an area where advocacy sometimes runs ahead of evidence with regard to workers in mid-career and beyond. In countries such as China, significant expansion has occurred in short-course adult training in the TVET (technical and vocational education and training) system in response particularly to the needs of migrant workers, though they are usually in their 20s and 30s. Such experience may be adaptable for those in mid-career and beyond. Continuing evaluations of the experience and cost-benefit of older worker training in richer East Asian and Pacific economies would also be important.

In light of the proliferation of initiatives to stimulate female labor force participation across the region's richer countries in recent years, evaluating the relative effects of different approaches will be important. Certain public interventions such as increasing the supply of affordable child care and elder care appear to have positive effects on working women in East Asia and Pacific and globally. The effects of other interventions such as paid parental leave have less demonstrated effect in the labor market (though it may have other positive effects on children and family life). A more rigorous cost-benefit analysis to inform future policy prioritization, including the potential interaction effects of various incentives and benefits, would be valuable.

To date in richer East Asian and Pacific economies, little rigorous assessment has been done of the cost-effectiveness of various financial incentives to promote extension of active working lives. An important question related to financial incentives for hiring older workers is the extent to which they should be targeted by age only or as part of broader schemes based on characteristics such as unemployment or low income. In addition, a better understanding of what influences employer attitudes toward hiring or retaining older workers is needed.

As countries in the region continue to reform their social security systems, having better insights on the labor market effects of incentives and disincentives to retire in social security and tax systems is important. Evidence from OECD countries is clear that retirement incentives in social security systems substantially affect the behavior of older workers. In addition, current retirement rules and early retirement incentives in middle-income East Asian and Pacific countries appear to lead urban formal sector workers to retire earlier than will be sustainable in an aging society. However, more systematic analysis is needed of the observed effects in the region's developing countries of how strongly pension rules alter labor force behavior, how formal sector work and self-employment after withdrawal from wage employment interact, and what levels of generosity of social pensions produce significant effects on the work of older people. These questions are more challenging in environments with high informality, but are important to analyze further.

An important dynamic in labor markets of developing East Asian and Pacific countries that needs to be better understood is the interaction of the labor force participation of working parents of young children, the work and caring responsibilities of grandparents, and the child care and long-term care markets. The care provided by grandparents across the region appears to facilitate the work of their adult children, and also partially fills an important gap in long-term care markets. One must understand the extent to which caring duties push older people, particularly women and especially those in urban areas, out of the labor force earlier than they may otherwise choose and the formal child and long-term care arrangements that are needed to offset this effect if it is occurring.

A final and inadequately studied issue in the East Asian and Pacific context is the degree to which extending the working lives of older people has any effects on the employment prospects of younger people. Evidence from OECD countries is

very clear that extending the working lives of older people does not harm, and may mildly help, the employment prospects of younger people. However, the phenomenon is not well studied in East Asia and Pacific, though studies in China find a similar effect. Nevertheless, in economies where public employment accounts for a higher share than in OECD countries (for example, the Lao People's Democratic Republic, the Pacific Island countries, and Vietnam) and fiscal constraints are tight, assessing the extent to which OECD findings hold would be important. This approach is part of a global need to assess the lump-of-labor fallacy in non-OECD settings.

### The situation of older people and households in East Asia and Pacific

Understanding the financial well-being, health, family relations, and consumption and savings behavior of different age groups requires better data than are currently available from most household living standards surveys in East Asia and Pacific. Current national household surveys of income and consumption tend to be poorly geared toward studying aging, because most use the household as a unit of analysis and are thus not well suited to understanding intrahousehold well-being and behavior.

The region has benefited in recent years from the spread of surveys dedicated to the situation of older people, but scope to expand geographic coverage and enhance the aging focus of regular surveys remains. The expansion of aging-related surveys in the region includes health and retirement living survey (HRS)-style surveys in China, Indonesia, Japan, Korea, and Thailand—and also India in South Asia.<sup>2</sup> Countries such as Myanmar, Thailand, and Vietnam also have conducted useful surveys of older populations, and initiatives such as the World Health Organization's SAGE (Study on Global Ageing and Adult Health) survey include China. These surveys allow for more detailed analysis of the living conditions of

older people and their families across a range of dimensions. For countries with ongoing HRS-style surveys, the challenge is to sustain funding for future rounds and, ideally, to bring the surveys into the mainstream of official statistical systems. Scope also exists to further improve the aging surveys, through wider sampling of working-age people and the eldest elderly; introduction of a panel element to the samples lacking that element; and inclusion of more detailed questions on issues such as asset wealth, physical and cognitive functioning, and caring arrangements.<sup>3</sup> Countries without an HRS-style survey should consider initiating one, potentially with co-financing from global research funding sources such as those that provided support for CHARLS (China Health and Retirement Longitudinal Study) in China (from the National Institute on Aging at the National Institutes of Health, U.S. Department of Health and Human Services). In cases where funding or capacity is limited, inclusion of aging modules in regular household living standards surveys would be useful. For example, Thailand provides aging-related modules in its general household survey every four to five years.

Areas needing a better understanding of the dynamics of elderly and household welfare include the following:

- *Total wealth of older people beyond current income and expenditure.* The mixed evidence from income and expenditure surveys on elderly welfare highlights the importance of including wider aspects of household wealth in welfare and inequality analysis, including housing and land ownership, savings, and other assets.
- *The extent that the labor force behavior of older people changes as societies urbanize and other factors such as health and longevity change.* The very distinct nature of rural and urban labor markets for older people in East Asia and Pacific suggests potential shifts in work and retirement behavior as urbanization deepens. However, the behavior of urban older people is likely to change over time in the



face of demographic, policy, and behavioral changes that affect return to work at older ages.

- *The way the family unit is changing in the region in terms of structure and behavior and the resulting implications for aging.* A key aspect of this area is the way co-residence patterns continue to change in the face of changing fertility, migration, urbanization, and other factors, and the way mutual support within families responds to changes in residence patterns. Research from China suggests that analysis needs to go beyond simple co-residence of parents and adult children to analogous situations where adult children live nearby and provide care and other support. In addition, an understanding of how children may split support responsibilities (for example, in-kind care from proximate children and remittances from migrant children) is needed.
- *The way sources of support for older people evolve.* Although the current primary role of own labor in elderly support in most East Asian and Pacific countries is clear, the situation may change as countries get richer and social security coverage spreads. Of particular interest will be the interaction between public and private transfers to older people, the degree of family support, and labor force behavior, especially for rural people.

There is a significant agenda to develop the monitoring mechanisms that will allow policy makers to assess the individual and societal welfare effects of rapid aging for older people and their families. Apart from the need for better household surveys, East Asian and Pacific countries would benefit from more systematic monitoring of a core set of age-related indicators to assess trends in the welfare of older people. A useful example of such a framework can be found in the Active Aging Index, which measures indicators related to work, social activities and participation, independent living, and the enabling environment for healthy and productive aging (box 8.1).

## Health and long-term care

A first crucial building block for informing health, long-term care, and other areas of public policy is the continuation of monitoring the evolution of life expectancy relative to healthy years of life expectancy. Understanding whether East Asia and Pacific is experiencing compression or expansion of morbidity, and to what extent, need further analysis, particularly in a region where aging is occurring in populations that may have had higher exposure to risks (smoking, poor diets, and so on) at younger ages than those in Western Europe and North America—the source of much of the morbidity compression evidence.

In addition, better analysis is needed of health expenditures in developing countries in the region, including both disaggregation of past expenditure trends (to analyze the relative contribution of aging and nonaging effects in health expenditure) and more regular and robust expenditure projections for more countries. Health spending projections are inherently more challenging than pensions because of the multiplicity of influencing factors on the demand and supply sides, particularly dramatic improvements in the availability and effectiveness of medical technology. Existing projections in East Asia and Pacific tend to rely on the morbidity compression hypothesis, which may not be a sound basis for projecting spending in the region. Existing projections also do not factor in adequately the large-scale expansions in coverage and urbanization, which could dramatically increase health care use and expenditures. Furthermore, aside from a few studies from the United States and OECD, research is lacking about the extent to which technology interacts with aging to drive up expenditures.

Although aging increases the urgency of greater emphasis on primary care with coordination across levels of care, emerging experience on how best and most affordably to achieve such a transformation in lower- and middle-income countries needs to be shared. In Thailand, the drive for universal health coverage was accompanied by significant

### BOX 8.1 The Active Aging Index: A tool for monitoring the situation and potential of older people

The Active Aging Index (AAI) is a tool developed by the European Commission and the United Nations Economic Commission for Europe to measure both the current living conditions and the untapped potential of older people for active and healthy aging across 28 European countries. It measures the level at which older people live independent lives and participate in paid employment, social activities, and civic life, as well as their capacity to actively age.

The index is constructed from 22 individual indicators that are grouped into four domains: employment, social participation, independent living, and capacity for active aging. The results of the AAI are presented in a country ranking for the overall AAI and for each of the domains. AAI also offers a breakdown of results by gender. It was developed in part in response to the review and appraisal of implementation of the Madrid International Plan of Action on Ageing and its Regional Implementation Strategy. The domains and their indicators are outlined as follows:

1. Employment of older workers
  - a. Employment rate ages 55–59
  - b. Employment rate ages 60–64
  - c. Employment rate ages 65–69
  - d. Employment rate ages 70–74

2. Social activity and participation of older people
  - a. Voluntary activities
  - b. Care to children and grandchildren
  - c. Care to older adults
  - d. Political participation
3. Independent and autonomous living of older persons
  - a. Physical exercise
  - b. Access to health services
  - c. Independent living
  - d. Financial security (three indicators)
  - e. Physical safety
  - f. Lifelong learning
4. Capacity and enabling environment for active aging
  - a. Remaining life expectancy at age 55
  - b. Share of healthy life expectancy at age 55
  - c. Mental well-being
  - d. Use of information and communication technology
  - e. Social connectedness
  - f. Educational attainment

For details of the questionnaire that underlies the reporting and of the methodology, see Zaidi et al. (2013).

scaling up of primary care service provision. Brazil's Family Health Program provides useful lessons for reorienting provision away from a hospital-centric model and improving health outcomes through multiprofessional teams delivering primary health care. The program emphasizes the continuity of care, an integrated service package, a first point of access and coordination within the health system, and a focus on the family. Turkey has recently embarked on health system reforms that take a primary care-centered approach. Yet, not enough is known about why these three countries have been successful in primary care-centered reforms, the political economy factors that drove them, and the

fiscal implications. Better understanding of such factors will be important to assess what lessons are most adaptable to the East Asian and Pacific context. In addition to changes throughout the health delivery systems, particular attention will be needed to develop effective and sustainable models for management of age-related conditions such as dementia and to balance the trade-offs between quality of care, health outcomes, and costs in end-of-life care.

With respect to long-term care, although greater reliance on community- and home-based care for most people is a priority, the models that are most viable in low- and middle-income settings remain to be demonstrated.

The emerging regional experience in countries such as China and Thailand and the experience with community-based models being piloted in middle- and low-income countries in the region promise to contribute lessons on balancing access, cost, quality, and cultural appropriateness. Furthermore, government systems for monitoring hospital performance should be developed to give a clearer view of those hospitals currently being used as default long-term care arrangements. More broadly, the experience of OECD countries suggests that assessing and promoting decent quality long-term care will be vital, with a particular emphasis on the trade-off between quality and cost. This approach will help clarify where the market failures in provision lie and what segments of the market are most in need of incremental public subsidies.

## Pensions and social security

In the region's low- and middle-income countries, the adequacy and sustainability of pension systems and their effect on labor markets are less of an immediate concern than ensuring wide coverage. This is especially true in countries such as China and Vietnam where populations are aging at unprecedented speed. Because all contributory pension schemes—defined benefit or defined contribution, funded or unfunded—take decades to produce significant pension incomes, the inability of the traditional social insurance model to provide a timely solution to the pension coverage gap is becoming increasingly clear. This conclusion is strongly supported by the international experience.

If coverage expansion is an urgent priority, what are the options? In the long term, with time to accumulate pension wealth, potential may exist for subsidized contributory schemes where, as in many health insurance schemes, the premium for the poor is paid by the government and the nonpoor (or near-poor) informal sector has subsidized or matched contributions. This approach raises questions about the required level of public premium subsidy to generate

significant voluntary participation of informal workers. It also raises questions about feasible, low-cost mechanisms to collect contributions from informal workers. No clear answer exists to the question of what level of subsidy is enough globally, though successful examples of coverage expansion within East Asia and Pacific have entailed substantial subsidies (for example, China and Korea at both collection and pay-out stages). With respect to collections, evidence from developing countries points to the importance of intermediary aggregators who are able to act as collection channels for groups of workers (for example, farmer cooperatives, trade unions, and microfinance organizations, as in parts of India) and the potential for mobile technology to facilitate collections and payments (for example, Kenya's Mbao pension plan) (Kwena and Turner 2013). Piloting and experimentation will be needed if the route of matching contributory schemes combined with a more flexible and efficient collection infrastructure is to be expanded.

Yet no contribution-based program will yield results in the short term, and a dual strategy is needed to combine rapid coverage expansion with long-term adequacy of benefits. The current and soon-to-be elderly population can be lifted from poverty only by social assistance programs, which may include social pensions (that is, categorical cash transfers aimed at the elderly). Several East Asian and Pacific countries, and many more globally, demonstrate the potential of social pensions to achieve rapid and widespread coverage. In some, the level of the pension and its coverage are both high, raising challenges of long-term sustainability as the population ages. In others, the benefits are so low as to render the programs ineffective in preventing old-age poverty. A holistic social assistance policy must address any trade-offs that may exist between programs targeted to the elderly and those targeted at poor households. In low-income countries, the elderly poor tend to live with their families, so a program targeted at poor households will tend to reach the elderly poor as well. In essence, only social pensions can address short-term elderly

poverty, whereas expansion of contributory pension schemes, including those with subsidies for the informal sector, can help address the situation in the long term. Combining these two policy instruments in a dynamic plan should be part of the overall strategy for a social protection system.

A third set of questions relates to the effect of pension systems on the broader economy. In light of the common objectives of East Asian and Pacific countries of sustaining economic competitiveness and gradually increasing formalization of the labor market, a need exists to understand better the responses of firms and workers to different social contribution rates. Do high rates deter labor market formalization, as analysis from some Latin American and Caribbean countries, the European Union, and Turkey suggests? If so, at what level of social contribution are negative effects on labor market formality likely to be felt? What segments of the labor market are most likely to be affected, and what are the options to reduce the effect?

### Cross-cutting issues

A challenging aspect of aging societies is institutional change and the way public, market, and private institutions need to change in the face of rapid aging. In this respect, “institutions” can have several meanings: organizations or stakeholders and their configuration; public policies that set the institutional framework in specific areas (for example, labor regulations); or more broadly, sociocultural norms with respect to the extended family or gender relations. With respect to public institutions, developing countries in East Asia and Pacific are still coming to terms with institutional arrangements to respond to rapid aging. Several countries, including China, Indonesia, Thailand, and Vietnam, have national commissions, councils, and committees on aging that act as the highest-level bodies to raise the profile of aging issues, perform some coordination functions, and coordinate reporting on international obligations such as the Madrid International Plan of Action on Ageing. Such bodies are often the

focal agencies for a national aging strategy or action plan, and in some cases, they also help monitor performance under specific laws on the welfare of the elderly. Both the agencies and the strategies perform a useful function, though the primary policy development function continues to rest with line ministries such as labor, social security, health, and welfare. Among those ministries, as in developed countries, uncertainties about the boundaries of sectoral leadership in areas such as the continuum of care from aged care to long-term care services, or the interaction of labor and social security policies with respect to older workers, sometimes exist. These are ongoing challenges even in countries that have had aged populations for long periods. However, there are several examples of so-called super-ministries in OECD countries, which bundle the key policy and service delivery functions around aging populations (health and long-term care, pensions and social security, aged care, and sometimes employment) into a single public agency.

A second area in which sharing experience across and within countries would be valuable is the building of social consensus around policy and behavioral change needed to manage rapid aging. The experience of richer East Asian and Pacific economies suggests that there may be a distinctive political economy to regional efforts to navigate societal aging. To date, the region’s countries have demonstrated less conflictual political economy dynamics across generations as they have sought to respond to the rising needs of growing elderly populations. At the same time, older people do not yet appear to have mobilized as openly as in other parts of the world to promote their interests, and the voice of older people’s associations is still emerging. How much such trends reflect strong residual respect for older generations or different political systems and dynamics is unclear, as is how such dynamics may shift over time.

### Conclusion

Aging will fundamentally reshape societies and economies in East Asia and Pacific, but

the shape of the future is very much in the hands of policy makers, communities, and citizens. Demography is a powerful force in development, but it is not destiny.<sup>4</sup> Policy makers in the region have the potential to shape responses that increase the chances for healthy and productive aging and promote societies in which the compact between generations is fair and realizes people's potential at all ages.

In this process, East Asian and Pacific economies can learn from the experiences—good and bad—of richer and older countries, as well as from one another. Crafting appropriate policies will inevitably involve experimentation and course correction. This approach will also require strong leadership in the face of inevitable reluctance to embrace change. Fortunately, the region's strong economic and cultural traditions place it in a favorable position to create environments in which citizens will live long and prosper.

## Notes

1. For more information, see the Wittgenstein Centre Data Explorer, <http://www.wittgensteincentre.org/dataexplorer>. See also McDonald (2014) for an analysis of demographics using the Wittgenstein Centre projections for a number of East Asian and Pacific countries.
2. Originating with the U.S. Health and Retirement Living Survey, HRS-style surveys are also conducted in a number of OECD countries, most notably ELSA (English Longitudinal Study of Ageing) in the United Kingdom and SHARE (Survey of Health, Ageing, and Retirement in Europe) in the European Union, which in its latest wave included 18 European countries (SHARE, <http://www.share-project.org>). See Smith and Majmundar (2012) for a detailed review of aging-related data initiatives in Asia.
3. Future waves of CHARLS (China Health and Retirement Longitudinal Study) in China, LASI (Longitudinal Aging Study in India) in India,

and IFLS (Indonesia Family Life Survey) in Indonesia include a range of cognitive tests.

4. This position and a debunking of age-related myths is efficiently summarized in Börsch-Supan (2013).

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#### ECO-AUDIT

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**A**ging is a challenge that countries in the East Asia and Pacific (EAP) region are grappling with or will soon confront. The issue raises many questions for policy makers, ranging from labor-market implications, to potential macroeconomic impacts, to the fiscal challenges of supporting long-term systems for pensions and health care. The urgency of aging-related challenges varies across the region, but successfully meeting the challenges will require early preparation to avoid the missteps of other regions.

*Live Long and Prosper: Aging in East Asia and Pacific* discusses the societal and public policy challenges and reform options for EAP countries as they address aging. The book aims to strike a balance between optimism and pessimism over aging. On the one hand, the impacts of aging on growth, labor markets, and public spending need not represent the unavoidable catastrophe sometimes feared. On the other hand, minimizing the downside risks of aging and ensuring healthy and productive aging will require proactive public policy, political leadership, and new mindsets across society.

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*"The study addresses one of the most important issues that East Asia will face for years to come. The approach is comprehensive, recognizing that good solutions to population aging require effective cradle to grave policies. And the study is nuanced, eschewing alarmist rhetoric while recognizing the serious challenges that await us."*

— **Andrew Mason, Professor of Economics, University of Hawaii and East-West Centre; Co-Director, National Transfer Accounts Project**

*"This volume constitutes a much-needed synthesis of what we know, and what we should do about, population aging in East Asia and the Pacific—and indeed, more generally. It will provide guidance for governments, international agencies, businesses, and academic researchers for years to come."*

— **John Piggott, Scientia Professor of Economics and ARC Australian Professorial Fellow, University of New South Wales; Director, ARC Centre of Excellence in Population Ageing Research**